AD NUMBER

ADB281924

NEW LIMITATION CHANGE

TO

Approved for public release, distribution unlimited

FROM

Distribution authorized to U.S. Gov't. agencies only; proprietary Information; Oct 2001. Other requests shall be referred to US Army Medical Research and Materiel Command, 504 Scott Street, Fort Detrick, MD, 21702-5012.

AUTHORITY

USAMRMC ltr, 8 Jan 2003

AD_____

Award Number: DAMD17-96-1-6325

TITLE: A Subacute Care Intervention for Short Stay Cancer Surgery

PRINCIPAL INVESTIGATOR: Gwen K. Wyatt

CONTRACTING ORGANIZATION: Michigan State University
East Lansing, Michigan 48824-1046

REPORT DATE: October 2001

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

NOTICE

USING GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA INCLUDED IN THIS DOCUMENT FOR ANY PURPOSE OTHER THAN GOVERNMENT PROCUREMENT DOES NOT IN ANY WAY OBLIGATE THE U.S. GOVERNMENT. THE FACT THAT THE GOVERNMENT FORMULATED OR SUPPLIED THE DRAWINGS, SPECIFICATIONS, OR OTHER DATA DOES NOT LICENSE THE HOLDER OR ANY OTHER PERSON OR CORPORATION; OR CONVEY ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY RELATE TO THEM.

LIMITED RIGHTS LEGEND

Award Number: DAMD17-96-1-6325
Organization: Michigan State University

Those portions of the technical data contained in this report marked as limited rights data shall not, without the written permission of the above contractor, be (a) released or disclosed outside the government, (b) used by the Government for manufacture or, in the case of computer software documentation, for preparing the same or similar computer software, or (c) used by a party other than the Government, except that the Government may release or disclose technical data to persons outside the Government, or permit the use of technical data by such persons, if (i) such release, disclosure, or use is necessary for emergency repair or overhaul or (ii) is a release or disclosure of technical data (other than detailed manufacturing or process data) to, or use of such data by, a foreign government that is in the interest of the Government and is required for evaluational or informational purposes, provided in either case that such release, disclosure or use is made subject to a prohibition that the person to whom the data is released or disclosed may not further use, release or disclose such data, and the contractor or subcontractor or subcontractor asserting the restriction is notified of such release, disclosure or use. This legend, together with the indications of the portions of this data which are subject to such limitations, shall be included on any reproduction hereof which includes any part of the portions subject to such limitations.

THIS TECHNICAL REPORT HAS BEEN REVIEWED AND IS APPROVED FOR PUBLICATION.

Nrusingha Charan Mishra
06/05/2002

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	October 2001	Final (15 Sep 96 - 14 Sep 01)

4. TITLE AND SUBTITLE
A Subacute Care Intervention for Short Stay Cancer Surgery

5. FUNDING NUMBERS
DAMD17-96-1-6325

6. AUTHOR(S)
Gwen K. Wyatt

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Michigan State University
East Lansing, Michigan 48824-1046

E-mail: gwyatt@msu.edu

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Distribution authorized to U.S. Government agencies only (proprietary information, Oct 01). Other requests for this document shall be referred to U.S. Army Medical Research and Materiel Command, 504 Scott Street, Fort Detrick, Maryland 21702-5012.

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 Words)

The purpose of this study was to add to the scientific basis for providing subacute care in the home, by testing the effects of a post-operative nursing intervention designed to facilitate quality of life and physical/psychological well-being after diagnosis and surgery for breast cancer. A randomized clinical trial with repeated measures examined the effects of the intervention. **Intervention** participants (n=121) received the targeted subacute care protocol from a study nurse within the first 14 post-operative days. **Control A** participants (n=64) received surgeon-ordered agency home nursing care. **Control B** participants (n=55) received no post-surgical nursing care. All participants continued to receive conventional medical care. Overall, women who received the intervention were discharged from the hospital sooner, received significantly fewer nurse visits (less than half the number received by control A participants), showed a trend toward using fewer health services post-discharge, and yet achieved comparable or better physical, emotional, and educational outcomes than control participants. All women reported continued difficulty in physical functioning 4 weeks after surgery, and upper body functioning was significantly correlated with increased anxiety and diminished quality of life. Based on these findings, future research must address the physical functioning and emotional needs that continue for breast cancer patients beyond 4 weeks after surgery. This intervention could be applied to any short-stay surgical setting to support women through the subacute phase of breast cancer surgery.

14. SUBJECT TERMS
Breast Cancer, Quality of Life, Subacute Care, Short-Stay Surgery, Improved Outcomes, Cost Containment, Return to Productivity

15. NUMBER OF PAGES
141

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

TABLE OF CONTENTS

REPORT

APPENDICES

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

INTRODUCTION

I. SUBJECT OF RESEARCH

The **subject** of this grant included the provision of a cost effective, highly targeted, randomized clinical trial (intervention) which provided two weeks of post-surgical nursing care in the home for women following short-stay surgery for breast cancer.

II. PURPOSE OF RESEARCH

This study was designed to address the well-documented, but unmet, physical and psychological needs of women undergoing surgery for breast cancer.[1,2,3,4] The **purpose** of this study was to support women during the immediate post-operative phase in order to facilitate return to pre-surgical quality of life and improved physical and psychological well-being, at a reasonable cost following short-stay surgery for breast cancer.

III. SCOPE OF RESEARCH

The **scope** of this study was to test the impact of a short-term (14 days post-surgical), subacute care intervention for women (21 years of age and older) who had undergone short-stay surgery (48-hours or less) for breast cancer. When compared to conventional post-surgical care, the subacute care (in-home intervention) was targeted to help women attain optimal recovery during their immediate post-surgical phase and assist them in regaining their pre-surgical health status prior to initiating adjuvant therapy. The broader impact of this study may include contributions to policy on length of stay for breast cancer surgery, dose of post-surgical nursing care needed, the protocol of care that is most effective for desirable outcomes, and standardizing customary costs for care.

The **technical objectives** of the study included:

A. Testing the effects of a nursing intervention consisting of immediate post-operative (1-14 days) telephone and in-home nursing assessment and care, by describing and comparing the physical and psychological well-being between 2 groups of women with breast cancer: the intervention group, who received conventional post-surgical medical care plus a 14 day treatment (nursing care in the home and phone contacts) consisting of individual physical and psychological support, self-care, and education; and the control group, who received conventional post-surgical medical care with or without nursing care provided by a home care agency and ordered by their surgeon.

B. Comparing intervention and control group perceptions on the dimensions of physical functioning, anxiety status, quality of life, and self-care knowledge.

C. Comparing the control and intervention groups' out-of-pocket expenses which were sustained by the women and their families in relation to the breast surgery, costs of treatment, and related services during the first month after hospital discharge.

BODY

I. STATEMENT OF WORK (As Submitted with Original Proposal)

YEAR	TASK	TIME PERIOD	ACTIVITIES
I	Task 1	Pre-Funding	Orient physicians to study at all sites.
I	Task 2	Months 1 - 6	Obtain IRB approval at all agencies. Recruit and train research personnel.
I	Task 3	Months 7 -12	Begin participant recruitment, intervention, and data collection. (n=25)
II	Task 4	Months 13 - 18	Continue participant recruitment, intervention, and data collection. Monitor accrual. (n=50)
II	Task 5	Months 19 - 24	Continue participant recruitment, intervention, and data collection. Monitor accrual. (n=50)
III	Task 6	Months 25 - 30	Continue participant recruitment, intervention, and data collection. Begin data entry. (n=50)
III	Task 7	Months 31 - 36	Continuing recruitment, intervention, and data collection. Accelerate recruitment if necessary to account for any participants who do not complete intervention. (n=50)
IV	Task 8	Months 37 - 42	Continue recruitment if needed (n=25). Complete data entry on computer. Begin preliminary data analysis.
IV	Task 9	Months 43 - 48	Complete statistical analysis. Prepare research reports. Prepare manuscript for publication.
V	No Cost Extension	Months 48 - 60	Continue recruitment to enlarge sample size, conduct final analyses, prepare an additional manuscript for publication.

A. TASKS

1. Task 1, Pre-funding Period (YEAR 1), Orient physicians to study at all sites.

Notification of funding occurred approximately September 1, 1996 and funding began September 15, 1996. Since there was minimal opportunity to begin this activity during the pre-funding period, physician orientation was moved to the time period for Task 2 (months 1 through 6).

The Principal Investigator and one Co-Principal Investigator initially introduced the study to surgeons at a surgical grand rounds meeting. An information packet containing the study design, abstract, brochure, consent form, and a letter of agreement between the study and the surgeon was distributed to each surgeon. Within a few weeks following this meeting, the Principal Investigator and a study nurse met with each surgeon individually to describe the study and to explain the potential benefits to his/her patients. At the conclusion of each meeting, the surgeon was asked to sign the letter of agreement. This letter outlined the protocol to be followed with the intervention participants, and explained that women who met the study criteria had a 50-50 chance of receiving the intervention. Each surgeon was also informed that he/she would receive two reports, an interim (at approximately 7 days post-operatively) and final (at 14 days post-operatively), for each of his/her patients in the intervention arm of the study. During this Task 1 time period, eleven surgeons began participating in the study.

2. Task 2, Months 1-6 (YEAR 1), Obtain IRB approval of all agencies. Recruit & train research personnel.

Institutional Review Boards (IRBs) for five sites (Michigan State University, Michigan Capital Medical Center, Sparrow Hospital, St. Lawrence Hospital, and St. Joseph Mercy Oakland Hospital) approved the study between September 1996 and May 1997. Single Project Assurances (SPAs) were submitted for each site as IRB approvals were obtained. IRB approvals were maintained through annual renewals.

Research personnel were hired and oriented during this time period. Additional intervention nurses were hired and oriented throughout the duration of the study in order to accommodate the number of participants in the protocol.

3. Additional Activities, months 1 - 6 (YEAR 1).

In addition to the Statement of Work tasks, the following materials and procedures were developed and implemented during Year 1:

a. Policy and Procedure Guidelines: Detailed guidelines were prepared to provide consistency across the key activities of the study (i.e., ***recruitment***, ***intervention***, ***interview***, ***chart audit***, and ***quality assurance***).

i. Recruitment guidelines included the position description for recruiters, randomization procedure instructions, detailed instructions for the recruitment of patients and obtaining consent, pre-test questionnaires, agency consent forms, communication guidelines for interactions with agencies and patients, instructions for computerized entry of recruitment data, study brochure, and recruitment resources.

ii. **Intervention** guidelines included a professional nursing overview, position description for intervention nurses, information regarding confidentiality, universal precaution guidelines, health care referral policy, and attrition information.

iii. **Interview** guidelines included an interviewer training module, guidelines for conducting interviews, instructions for completing paper documentation (forms and letters), and instructions for the Computerized Interview Version 3 (Ci3) data entry program.

iv. **Chart Audit** guidelines provided detailed instructions on obtaining diagnosis and treatment information from patients' medical charts.

v. **Quality Assurance** (QA) guidelines included directions for QA review of recruitment, intervention, interview, and chart audit materials.

b. Intervention Protocol: Intervention protocol and documentation guidelines were created and standardized via customized computerized entry. A standardized protocol for the 14 day nursing intervention was also in place at this time. Documentation of the protocol was entered on a paper chart immediately following each intervention encounter. At the conclusion of the fourteen day protocol, the paper chart was entered into our customized, computerized data program. The computerized data entry program allowed continual access to summary information such as most frequently assessed symptoms, most frequently occurring nursing diagnoses, and most frequently used nursing interventions. (See Year Two Report - Appendix D for chart).

c. Data Collection Protocol: The data collection tools were computerized on a Ci3 software program. **Pre-test** data, which was collected prior to surgery via self-administered paper copy (see Year One Report - Appendix I), was entered into our Ci3 program immediately following collection at recruitment. **Post-test** data collection was conducted via telephone interview, and entered directly into our Ci3 program as the interview was conducted. (See Year One Report - Appendix N).

d. Chart Audit Protocol: Basic chart data were collected via paper copy and then entered into our computerized program (Ci3). While not part of the original proposal, a computer-based program was developed in Ci3 to track post-protocol complications which occur up to four months post-surgery. (See Year Two Report - Appendix E).

e. Quality Assurance Protocol: The quality assurance programs for recruitment activities, intervention protocol, and interview data entry were put in place during this time period. Both research staff and the Principal Investigator (P.I.) participated in quality assurance reviews on a regular basis. (See Year Two Report - Appendix F)

4. **Task 3, Months 7-12 (YEAR 1), Begin participant recruitment, intervention, data collection (n=25).**

A total of 31 participants were recruited between March 15, 1997 and September 14, 1997. Recruitment and intervention protocols were in full operation at this time, and data collection began. The Year 1 annual report was completed and submitted in September 1997.

5. **Task 4, Months 13-18 (YEAR 2), Continue participant recruitment, intervention, and data collection (n=50).**

There were 39 participants recruited into the study between September 15, 1997 and March 14, 1998 for a total study sample of n=70. Recruitment, intervention, and data collection protocols continued in full operation. Preliminary analyses were conducted in anticipation of the Year 2 annual report.

During this time period, the study was unable to collect post-test data on one participant. Every attempt was made to schedule the post-test interview which is usually conducted by telephone. After several canceled interview appointments, a paper copy of the instrument was mailed with detailed instructions and a stamped, return addressed envelope in which the participant could return it to the study office. Follow-up calls were made to facilitate completion of the interview. After many attempts, it became apparent that the patient had decided not to participate further in the study. We felt that it was beyond human subjects protocol to continue contacting the participant to complete the final interview.

6. **Task 5, Months 19-24 (YEAR 2), Continue participant recruitment, intervention, and data collection (n=50).**

Recruitment, intervention, and data collection protocols continued to be in full operation, with 38 participants being recruited between March 15, 1998 and September 14, 1998. This increased the total study sample to n=108. The Year 2 annual report was completed and submitted in September 1998.

Accrual was slightly less than anticipated during this time period as well as the period for Task 4. One of the reasons for this was that a primary surgeon affiliated with the study (from whom a large proportion of participants were recruited) was very ill and stopped seeing patients. This led to a slight decrease in the number of eligible patients for the study. In response to this decrease, steps were taken to increase our pool of eligible participants by adding three surgeons to the study, making a total of 13 surgeons (not including the surgeon who stopped seeing patients). The decreased numbers of eligible participants was not too much of a concern due to the very low attrition rate. Our power analysis was based on 200 complete data sets (allowing for a total attrition rate of n=50). Based on our low attrition rate and the addition of new surgeons to the study, we were confident that adequate numbers of participants would be accrued by the end of the study.

7. **Additional Activities and Changes, Year Two.**

In response to lower than expected recruitment numbers during months 13-24, two additional sites were opened at William Beaumont Hospital (Royal Oak and Troy campuses) and Hayes

Green Beach Hospital (Charlotte). It was anticipated that the two sites would give wider representation to the data by giving both urban (Beaumont) and rural (Charlotte) perspectives to breast cancer care.

The study design was revised to include a chart audit four months after each participant's surgery. While the 4 week chart audit that was initially planned for the study was valuable, much more comprehensive information was collected by conducting the chart audit at the 4 month period. Often pertinent data, such as laboratory reports, were not yet posted in the chart at 4 weeks post-operatively, and many other significant post-surgical events had the potential of developing several weeks after this period.

A minor change was implemented with the post-surgical data collection phase of the study. Before conducting the final telephone interview, a reminder letter and two parts of the instrument (Quality of Life and State Anxiety) were mailed to the participants. Instructions were included in the letter that explained why the instruments were sent, and asked the participant to refer to the forms during the telephone interview. Both instruments had multiple choice answers and proved to be difficult for some participants to answer when they could only hear their options over the telephone rather than seeing the choices. This procedure proved to be very successful. Interviewers reported a decrease of 10-15 minutes in the time it took to conduct the interview.

During this time period, a few changes occurred at some of the participating sites. St. Lawrence Hospital merged with Sparrow Hospital in 1998, and the name was changed to Sparrow Health System. The name of another participating site, Michigan Capital Medical Center, was changed to Ingham Regional Medical Center. Institutional Review Board (IRB) approvals were not affected and our IRB contact at the Department of Defense (DoD) was informed of these changes as they occurred.

A personnel change also occurred during Year Two. Our faculty statistician, Dr. Dorothy Pathak, was awarded two extensive research grants from the National Cancer Institute (NCI) and DoD. Thus, a new statistician, Dr. Wenjiang Fu, was brought onto the study. Dr. Fu was a colleague of Dr. Pathak's in the Department of Epidemiology at Michigan State University (MSU), and was oriented to our grant under the guidance of Dr. Pathak.

8. Task 6, Months 25-30 (YEAR 3), Continue participant recruitment, intervention, and data collection. Begin data entry (n=50).

Between September 15, 1998 and March 14, 1999, 34 participants were recruited into the study. This increased the total study sample to n=142. To increase the potential patient population from which to recruit, two additional surgeons were invited to participate in the study. This gave us a total of fifteen surgeons to work with in accruing new participants.

Data entry was well under way during this time period. All completed cases were entered into our computerized system, and preliminary analyses were conducted in preparation for the Year 3 annual report.

9. **Task 7, Months 31-36 (YEAR 3), Continuing recruitment, intervention, and data collection. Accelerate recruitment if necessary to account for any participants who do not complete intervention (n=50).**

Between March 15, 1999 and September 14, 1999, 47 participants were recruited into the study for a total study sample of n=189. Recruitment, intervention, and data collection protocols continued in full operation. The Year 3 annual report was completed and submitted in September of 1999.

10. **Task 8, Months 37-42 (YEAR 4), Continue recruitment if needed (n=25). Complete data entry. Begin preliminary data analysis.**

Between September 15, 1999 and March 14, 2000, 28 participants were recruited into the study for a total study sample of n=217. All completed cases were entered into our computerized system, and preliminary analyses were conducted in preparation for the Year 4 annual report.

Statistical support for the grant changed during year 4 to include staff from the Michigan Public Health Institute. The statistician for year 3 of the study, Dr. Wenjiang Fu, had other academic commitments and could not continue his role on our project. Dr. Cheribeth Tan-Schriner was the replacement for Dr. Fu and assisted with statistical analyses during year 4 and the no-cost extension period.

11. **Task 9, Months 43-48 (YEAR 4), Complete statistical analysis. Prepare research reports. Prepare manuscript for publication.**

A no-cost extension was granted in May, 2000 that allowed the study to continue through September 14, 2001.

Preparation of research reports was ongoing for various professional presentations. One manuscript was published during Year IV of the grant (May, 2000), detailing the protocol of the study (see **Appendix A**). The Year 4 annual report was completed and submitted in September, 2001.

12. **No-Cost Extension, Months 49-60 (YEAR 5), Continue recruitment to enlarge sample size, conduct additional analyses, prepare an additional manuscript for publication.**

During the time period for Task 9 and the first half of the No-Cost Extension period (March 15, 2000 and March 14, 2001), 23 participants were accrued into the study. Thus, the total sample size for this final report is n=240. Analyses will be reported on this larger sample size.

An additional manuscript was prepared during the No-Cost Extension period, entitled "Efficacy of an In-Home Nursing Intervention." An abstract was submitted to the Oncology Nursing Society (ONS). Following acceptance of the abstract, a full manuscript was requested to compete for the ONS Excellence in Cancer Nursing Research Award. While the manuscript was highly competitive, it was not selected for the award, but it will now be submitted to a peer-reviewed journal for publication. Please see **Appendix A** for this manuscript (this is a limited distribution item).

II. EXPERIMENTAL METHODS

A. Design (please see **Appendix B** for diagram of design)

A randomized clinical trial with repeated measures examined the effects of a short term intervention consisting of a combined telephone and in-home protocol. The intervention lasted 14 days and focused on physical and psychological subacute care following short-stay breast cancer surgery. Participants were randomly assigned to the intervention or control group prior to surgery. The control group was further subdivided into **control A** and **control B** depending on whether or not agency home care was ordered by their surgeon. The **intervention** group received the in-home study protocol; the **control A** group received agency nursing care ordered by their surgeon; and the **control B** group received no in-home nursing care. All three groups received conventional post-surgical medical care.

Data were collected on all participants at 3 times over a period of 4 months (at recruitment, four weeks post-surgery, and four months post-surgery). Data collection at recruitment and four weeks post-surgery were through a combination of self-administered written questionnaires and telephone interviews with the women. The rationale for this schedule was to obtain baseline data and to compare this data with data collected after the intervention, which allowed us to assess the immediate efficacy of the intervention. Data collection at four months post-surgery was in the form of a medical chart audit. Information was gathered on cancer stage, incidence of infection, seroma formation, additional surgeries, and other medical concerns that developed after initial breast cancer surgery. The four month time period allowed us to see the trajectory of post-surgical follow-up care.

B. Sample

Participants were women 21 years of age and older, able to speak and read English, who received short-stay surgery (48 hours or less) as a first treatment for breast cancer. For this study, surgery referred to mastectomy with lymph node dissection, mastectomy without lymph node dissection, or lumpectomy with lymph node dissection. Exclusionary criteria were pregnancy, in-situ tumors, reconstructive surgery concurrent with removal of cancerous tissue, an acute episode of medically diagnosed mental illness at the time of current breast cancer diagnosis, and a home address of more than 40 miles away from the surgeon's office. Most women were stage I or II since women with these stages generally undergo surgery as their initial treatment. English speaking skills were necessary to ensure that directions related to the data instruments and protocol teaching were understood.

C. Recruitment

Sixteen surgeons provided potential recruits over the course of the study, although one surgeon discontinued her participation due to illness. The projected sample size (n=200) was met during year four, and over-sampling was done during the no-cost extension period in order to enhance statistical power. To assist in recruitment, a study brochure was developed (in lay language) during the first year of the grant, and was distributed to each potential recruit over the course of the study. This brochure outlined each participant's 50-50 chance of being assigned to the intervention group of the study, discussed the intervention protocol, described benefits of being in the control group, and explained how participation could contribute to breast cancer knowledge.

Several recruitment issues were noted during year one of the study. First, it was discovered that women were being informed of their diagnosis and scheduled for surgery within a matter of days. The short window of time between confirmed diagnosis and surgery required close communication between the study recruiter and the surgeon's office staff in order to identify potential participants in a timely manner. Secondly, the short time frame limited the number of opportunities to meet with women face-to-face once they were identified. Thirdly, we found the recruitment process to be much more labor-intensive than originally expected. Face-to-face contact between recruiter and potential participants was usually not possible, so participants were contacted over the phone, given a brief summary of the study, and asked whether they would like additional information sent to their home. A follow-up phone call was then made to confirm that the materials were received and to answer any questions. If there was not enough time to mail the materials before surgery, the recruiter would make arrangements to visit the potential participant at home to deliver the pre-test questionnaire and consent form personally or would send the materials via overnight mail. Despite these potential obstacles during recruitment, accrual continued without excessive difficulty.

D. Accrual

The accrual of participants was successful despite the short window of time between diagnosis and surgery. Of all the women who were contacted about participating in the study, approximately **78%** were successfully accrued. Our attrition rate was n=0 with one anomaly where the post-test data was not obtainable due to the participant not responding to multiple attempts to obtain this data. In addition, two participants consented but became ineligible due to a change in their status (e.g., primary site found to be in lungs, so breast surgery was postponed). We attribute the success of accrual to the fact that all study recruiters were registered nurses who were well informed about breast cancer, the surgical process, and other health issues about which women may have concerns. Recruiters were also instructed to consider the psycho-social issues facing cancer patients and employ empathy and active listening during recruitment.

E. Randomization

Once accrued and baseline data were collected, women were randomly assigned to the intervention or control groups. The recruiter telephoned the campus research office, where a research assistant selected the next randomization card for that community site. The research assistant provided the recruiter with the name of the nurse intervener assigned to the participant (intervention group only).

Once randomization was complete, the surgical office staff members were informed of the woman's assignment to a study group (i.e., Intervention or Control). For those participants who were not assigned to the intervention group, the surgical staff could choose to order agency nursing care. At our Detroit area sites, agency nursing care was never requested for women; whereas, at our Lansing sites, agency nursing care was ordered for the majority of control participants. Exceptions to this practice at the Lansing sites included situations where the woman was staying out-of-town with a relative immediately after surgery, the woman declined agency home care, or in instances where insurance did not cover agency nursing care.

F. Control Group

The control group was further divided into two subgroups (**Control A** and **Control B**), since some surgeons ordered an agency home care nurse when their patients were assigned to the study control group. This plan to consider two subgroups (**A** and **B**) within our control sample was anticipated and outlined in our Year I Annual Report. **Control A** participants received conventional post-operative medical care and surgeon-ordered home care provided by an agency nurse. **Control B** participants received only conventional post-operative medical care following surgery, without any home nursing care.

At the conclusion of participation in the study (3 to 5 weeks post-surgery), all control participants (groups **A** and **B**) received the same resource packet that the **intervention** group received during their participation, and they also received a $10 check for participating at the data collection points. Through informal comments at the end of the interview, many participants (including controls) indicated the benefits gained by participating in the study. A common acknowledgment was that the comprehensive interview allowed them to look at their cancer experience more holistically and to "put everything into perspective."

G. Intervention Group

The subacute care intervention was accomplished through a minimum of four contacts (two phone calls and two home visits) by a nurse intervener. The first phone contact was made within the first post-discharge day to assess any immediate needs and to schedule the first home visit. The first visit focused on **physical** issues related to surgery, symptoms, wound and drain care, and quality of life assessment. The second phone contact occurred between the first and second in-home visits to provide an ongoing link to the health care system, assess physical and psychological needs, and to schedule the second visit. Women were also encouraged to contact their intervention nurse by pager between visits if needs or questions arose. At the second visit, the intervention focused on **psychological** issues, provided follow-up on physical concerns and **education** regarding breast self exam, arm range-of-motion exercises, and lymphedema prevention. Information on community resources was also provided with the goal of increasing access to opportunities for ongoing resources and support. Finally, one or two additional phone contacts or visits by the nurse intervener were occasionally necessary during the two week period following surgery to ensure a timely return to pre-surgical activities.

H. Intervention Protocol

While the protocol consisted of a minimum of two telephone calls and two in-home visits for each woman in the intervention arm of the study, some women received additional encounters if assessed as necessary by the study nurse. All protocol steps were covered by the nurse during the first fourteen post-operative days in the participant's home. Please see the Year I Annual Report for additional details on the protocol.

I. Data Collection (please see **Table 1** for data collection schedule and instruments)

Data were collected at 3 points over a four month period: at entry into the study (baseline), at 4 weeks post-surgery, and at 4 months post-surgery. Baseline data were collected from all participants at the time of recruitment and prior to randomization. Data were collected by a nurse from the patient's medical records and by a self-administered instrument which was completed by

the participant prior to surgery. Once the nurse intervener completed the intervention with a participant, she contacted the research office so the participant could be assigned to a nurse interviewer for the telephone interview data collection which occurred approximately four weeks after surgery.

The 4-week data collection occurred after the completion of the intervention and prior to re-entry into the formal health care system for adjuvant therapy. Data were collected by a one hour telephone interview with the participant which was conducted by one of six study nurses. The nurse who conducted the interview was never the same nurse who recruited the patient or provided the intervention. This was done to minimize potential bias across roles on the study. The 4-week data provided information on the immediate effectiveness of the intervention. In some cases, women were referred for chemotherapy as early as three weeks post-surgically. We allowed for a variation of one week before or after the standard four week data collection point, which provided a range of three to five weeks post-surgery for the interview to be conducted. In most cases, this added flexibility to our interview time-frame allowed us to conduct the post-test interview prior to the women commencing adjuvant therapy.

The 4-month data collection was a medical chart audit conducted by a study nurse while recruiting new patients at participating sites. By combining the recruitment and chart audit tasks, the nurse reduced the number of trips to the surgical practice sites. Information on clinical measures (such as stage of disease), return visits to the surgeon, further surgeries, and complications were gathered through the audit. These 4-month data provided information on the post-protocol medical events encountered and needs of women following breast cancer surgery.

J. Measures

In addition to the items assessing demographic information, several measures were designed especially for this study and were part of the telephone interview conducted 4 weeks after surgery. Other instruments were standardized tools measuring surgical recovery/self-care knowledge, functional status, anxiety, quality of life, and health service utilization.

The items assessing surgical recovery and self-care knowledge were developed for this study by Wyatt[5] and were used as part of the 4-week post-surgical interview. The instrument included "yes/no" questions that obtained self-reported information on four areas: (a) infection status and antibiotic use; (b) surgical arm range-of-motion; (c) breast self-exam technique; and (d) lymphedema prevention knowledge. Also included were questions on the frequency of teaching sessions received on range-of-motion exercises and lymphedema prevention.

Functional status was measured by an adapted version of the instrument from the Rand Health Insurance Experiment and Medical Outcomes Research.[6] This 23-item instrument measured three dimensions of functioning: (a) physical activities; (b) balance and dexterity; and (c) upper body self-care activities. The original measure of physical functional status has been tested for validity and reliability with reported alpha coefficients exceeding .90.[7-10] Respondents were asked via telephone interview to consider their functional status at two different time intervals (i.e., prior to surgery, and then at the present time [four weeks after surgery]). Reliabilities (alpha coefficients) for this study ranged from .89 to .91, on pre- and post-test measures, respectively.

Given, et al.[11] developed the Physical Symptom Experience instrument, which asked participants how they had felt in the past 2 weeks, using a modified list of 21 symptoms. Included were questions such as, "Have you experienced pain in the past 2 weeks," and "Have you experienced fatigue (felt tired) in the past 2 weeks?" Response choices were "yes" or "no," which were scored 1 and 0, respectively. If the respondent answered that the symptom was experienced, they were then asked about the severity of the symptom (mild, moderate, or severe), and the extent to which daily activities were limited (no extent, small extent, some extent, great extent, or very great extent). The established alpha was .90, and the sample alpha was .73.

The State-Trait Anxiety Inventory by Spielberger, et al.[12] was used to measure anxiety. The State Anxiety scale consisted of 20 statements that assess how respondents feel "right now, at this moment." The essential qualities evaluated are feelings of apprehension, tension, nervousness, and worry. The alpha coefficient for a sample of working women was .93. Spielberger, et al. also reported evidence of concurrent, convergent, divergent, and construct validity.[12] The pre- and post-test alphas for the current sample were .95 and .95, respectively.

Quality of life was measured with Cella and Bonomi's Functional Assessment of Cancer Therapy-Breast (FACT-B) scale.[13] Subscales measured (a) physical well-being, (b) social/family well-being, (c) relationship with doctor, (d) emotional well-being, (e) functional well-being, and (f) additional concerns. Items were rated on a 5-point scale, in which 0 indicates "not at all," and 4 is "very much." Respondents were asked to consider the previous 7 days when completing the measure. Test-retest reliability correlations ranged from .82 to .92 in a sample of 70 outpatients with various cancer diagnoses.[13] The pre- and post-test alphas of the whole instrument for this sample were .89 and .91, respectively.

Given and Given[14] developed the conventional Health Service Utilization instrument. This instrument assessed the participants' use of five health services and included questions such as, "Have you used the emergency room since your surgery?" All items required a "yes" or "no" response and were scored as 1 and 0, respectively. The sample alpha was .29 with a group of older cancer patients.[15] The post-test alpha for this sample was .34. These data were collected during the 4-week telephone interview and included information such as the number of home visits.

The Complementary Therapy Utilization instrument was developed by Wyatt[16] and asks which of 19 complementary therapies (CTs) a respondent had used since surgery to treat their breast cancer. A question such as "Have you had a guided imagery session?" was answered with "yes" or "no," and scored 1 and 0, respectively. Frequency of CT use was also assessed and recorded as a numerical variable. The Complementary Therapy Utilization scale had a sample alpha of .39 with a group of older cancer patients.[15] The alpha with this sample was .43.

The Out of Pocket Health Costs instrument was developed by Given, Given, and Wyatt[17] and asks respondents to estimate their out-of-pocket costs in five areas: complementary therapies, medications, special supplies (i.e., dressings for the surgical wound), additional costs (i.e., increased utility bills, ordering more take-out food than usual, or travel expenses for a relative to stay with them), and total out-of-pocket costs incurred over the four week period following

surgery. Participants were asked if they incurred any expenses in these specific areas since their surgery, and then were asked to estimate the total amount. The post-test alpha with this sample was .67.

Information on post-surgical events such as cancer staging, complications, further surgeries, and follow-up visits to the surgeon were included in the Chart Audit developed by Wyatt[18] for this study. The information was collected via medical record audits which were performed by study nurses four months after the participant's initial surgery.

K. Data Analysis Plan

1. Baseline evaluation. Frequency distribution and measures of central tendency and variability were calculated for all variables of interest. The variables of interest can be grouped into three broad categories as 1) Physical Functioning; 2) Psychological Well-being (including Quality of Life and Anxiety); and 3) Costs. Within each category several individual measures were analyzed as well. The baseline comparisons were done to evaluate if the groups were the same on demographic and other variables that could impact the outcome variables to be evaluated post-intervention. The statistical methods used to assess for these differences were modified for two reasons: 1) The control group was separated into **Control A** (conventional post-operative medical care **plus** surgeon-ordered home care provided by an agency nurse) and **Control B** (only conventional post-operative medical care); and 2) our initial plan to adjust for possible site differences was not applicable since the majority of the subjects were recruited from the Lansing, Michigan sites. Consequently, for all continuous variables, one-way analysis of variance (ANOVA) was used to assess for baseline differences when comparing all three groups, or a two sample t-test was used when the two control groups were combined and compared to the intervention group.[19] If the assumptions of normality and equality of variances were not satisfied, we used non-parametric equivalents of these two tests. If differences were observed, analysis of covariance was used for the post-intervention comparisons.[19] For the discrete variables, we used the chi-square test for comparison of distributions in proportions across several levels of categorical variables in the two or three groups as appropriate, for a given comparison.[20-21]

2. Intervention evaluation. The primary outcome variables of interest post-intervention were aspects of physical functioning and quality of life for the patients. We hypothesized that the intervention group would have fewer physical functioning limitations and higher quality of life, than the non-intervention group. For both instruments (Functional Status and Quality of Life), the outcome measures evaluated included the overall summary value for each instrument as well as the single items or subscale scores which comprise the summary value on each scale. The overall measures were treated as continuous and the individual items on the Likert scale were tested for changes in distribution of proportions. Paired samples t-tests were used to assess within group differences from pre- to post-surgery. Bivariate analyses (e.g., Pearson r, chi-square, and t-tests) were conducted on selected variables of interest in relation to the specific aims. Repeated measures ANOVA was used to evaluate the impact of the intervention on the outcome variables. All of the above mentioned analyses were carried out in the SPSS[22] statistical package.

III. RESULTS

The results presented in this final report are consistent with the reports for Years I through IV. The following results are presented in relation to the Statement of Work (see page 2), and the specific aims of the study. The specific aims are:

1. **Improved surgical recovery and self-care knowledge**
2. **Higher functional status (ADLs)**
3. **Fewer symptoms**
4. **Lower anxiety levels**
5. **Higher quality of life**
6. **Less frequent use of health services**
7. **Fewer out-of-pocket payments for health services**

This final data set consists of **240** participants, with **121** participants in the **intervention** group, **64** in the **control A** group, and **55** in the **control B** group. Data were collected at baseline (pre-surgery) and approximately four weeks after surgery. There were no statistically significant baseline demographic differences found between the three groups. All data were analyzed as one site rather than by community, due to the smaller sample size accrued from the Detroit area sites (St. Joseph Mercy Oakland and William Beaumont Hospitals). One between site difference to note is in the ordering of agency nursing care. No control participants from the Detroit area sites had agency nursing care ordered when not in the intervention arm of the study; whereas approximately 63% of Lansing area control participants received agency care. (Please see **Table 1** for a list of the data collection instruments and schedule.)

The results for this report are presented in text and tables. The text highlights key points found in the tables. Data are presented in the following formats: 1) Between group differences, 2) within group differences from pre- to post-test, and 3) total group correlations for variables that demonstrated significant findings for the group as a whole (i.e., functional status, symptoms, anxiety, and hospital stay).

A. Pre-Test (self-administered) and Post-Test (interview) Data

1. Demographics (please see Table 2)

Analysis for Between Group Differences

Between group differences on categorical variables (e.g., race, marital status) were assessed using chi-square analysis for contingency tables, while group differences for continuous variables (i.e. income and age) were assessed using one-way analysis of variance (ANOVA). There were no significant pre-surgical differences between the three groups on any of the demographic variables; therefore the following data reflect the total sample. The majority of women were Caucasian (91.7%), married (62.5%), employed prior to surgery (56.7%), had at least some college education (68.3%), and underwent a lumpectomy with axillary node dissection (76.7%) for surgical treatment of their breast cancer. The mean age of the sample was 56 years, while the average annual household income was $55,164.

2. Surgical Recovery

Analysis for Between Group Differences

a. *Antibiotic Use to Prevent or Treat Infection* (please see **Table 3**): Between group differences on antibiotic use were assessed using chi-square analysis. There were no significant differences found between groups, thus the findings reflect trends in the data. The majority of women did not use antibiotics (75.8%) following their surgery. Of those who did use antibiotics, 64.3% of the women used them to prevent infection, while 30.4% used them to treat infection.

b. *Surgical Arm Range-of-Motion (ROM) Exercises* (please see **Table 4**): Knowledge regarding range-of-motion (ROM) exercise was evaluated in terms of education received (yes/no) and the number of times taught. Both chi-square analysis and ANOVA were used to assess for between group differences. Among **intervention** participants, a significantly greater proportion (91.3%) reported receiving education on ROM exercises ($p<.001$), when compared to control A (75.0%) and control B (61.8%) participants. Further, among those who reported receiving education, **intervention** participants received a significantly greater number of teaching sessions ($p<.04$), when compared to control A and B participants.

3. Self-Care Knowledge

Analysis for Between Group Differences

a. *Breast Self-Exam (BSE)* (please see **Table 5**): Differences in BSE knowledge (yes/no) and technique (use pads of fingers, examine area under arm, check for lumps/thickening, and do BSE same time each month) between groups were assessed using chi-square analysis. When responding to questions on BSE knowledge, 99.2% of **intervention** participants, 98.4% of **control A** participants, and 94.4% of **control B** participants reported understanding the procedure. When asked about the techniques used for BSE, the **intervention** group had a significantly greater number of participants who reported correctly using the pads of the fingers as a BSE technique ($p<.03$).

b. *Lymphedema Prevention* (please see **Table 6**): Lymphedema prevention was measured in terms of education received (yes/no) and the number of times taught. Both chi-square analysis and ANOVA were used to assess for differences in lymphedema prevention. Among the **intervention** participants, a significantly greater proportion (91.8%) reported receiving education on lymphedema prevention ($p<.001$), than control A (67.8%) or control B (49.1%). Further, among those who reported receiving education, across the three groups, **intervention** participants received the greatest number of teaching sessions ($p<.02$).

4. Functional Status (ADLs)

Analysis for Between and Within Group Differences

a. *Frequency of Limitations* (please see **Table 7**): Pre-and post-surgery functional status data were self-reported by women during the post-surgical interview. Participants were questioned about 23 possible limitations in functional status on a three point scale ranging from "not limited at all" to "limited a lot." For the 23 functional activities, participants were

asked to first recall their functional level prior to surgery, and then to report their current post-surgical level. Anova was used to assess for between group mean differences at both time periods, while paired-sample t-tests were used to assess within group differences from pre- to post-surgery. One significant between group difference was found in the area of moderate activities pre-surgery, in which the control B group had the lowest level of functioning ($p<.05$). There were no between group differences post-surgery. The four most frequently reported limitations post-surgery (common across all groups) were in vigorous activity, pushing heavy objects, lifting over 10 pounds, and moderate activities. Within group comparisons showed a statistically significant decrease in physical functioning for all groups on these four functional status activities from before to after surgery ($p<.001$).

b. *Severity of Limitations* (please see **Table 8**): For the four most commonly reported limitations experienced by each of the three groups, we further assessed the severity of these limitations using the chi-square analysis. Although differences were not significant, trends in between group comparisons showed that a greater proportion of **intervention** participants reported no change in the severity of the limitation from pre- to post-surgery when compared to the control groups, for vigorous activities, pushing heavy objects, and lifting over ten pounds. Thus, **intervention** participants had the lowest proportion who experienced an increase in severity of limitation from pre- to post-surgery on these three activities.

c. *SF36 Physical Functioning Subscale* (please see **Table 9**). Ten of the 23 functional status items were comparable to the physical functioning subscale of the SF-36 Health Survey.[10] The items included were vigorous activity, moderate activity, lifting or carrying groceries, climbing several flights of stairs, climbing one flight of stairs, bending/kneeling/stooping, walking more than one mile, walking several blocks, walking one block, and bathing self. Scoring was done according to SF36 instructions on a 0 to 100 scale, where the higher number equals better physical functioning. Scores were obtained for both pre- and post-surgical functioning. Anova was conducted to compare between group differences, while paired samples t-tests were used to assess within group differences. There were no significant between group differences pre- or post-surgery; however, all groups had significant within group differences pre- to post-surgery ($p<.001$). The pre-surgical mean score for the total group (n=221) was M=90.01 (SD=16.63). The post-surgical mean score for the total group (n=221) was M=69.21 (SD=21.97).

Analysis by Total Sample

d. *Relationship with Other Variables* (please see **Table 10**): For the total sample (n=240), a ten item subscale pertaining to upper body limitation was developed from the total functional status instrument and the mean score was correlated with the mean scores for total quality of life, the five quality of life subscales (physical, emotional, functional, relationship with doctors, and additional concerns), and the state anxiety scale to determine the relationship among variables. We found that greater upper body limitation was negatively correlated with total (overall) quality of life, as well as the five quality of life subscales ($p<.01$). Further, upper body limitations were positively correlated with greater state anxiety ($p<.01$).

5. Symptoms Experienced Following Surgery

Analysis for Between Group Differences

a. *Frequency* (please see **Table 11**): Participants were asked to report on their symptom experience following surgery. They were first asked if they had experienced any of the 21 listed symptoms (yes/no) during the last two weeks. If they had experienced a symptom, they were then asked to rate the severity on a three point scale (mild, moderate, or severe). To compare for possible differences in the mean number of symptoms experienced within each group, the total number of symptoms experienced was calculated for each participant. This continuous variable was assessed using ANOVA. For specific symptoms, a chi-square test for contingency tables was used to compare the severity of selected symptoms between groups. The mean number of symptoms reported by each of the three groups (**intervention**, **control A**, and **control B**) was not significantly different. The four most common symptoms (reported by 60% or more of each group) were pain, fatigue, numbness/tingling, and limitation in surgical arm range-of-motion. When compared to the control groups, the **intervention** group had a significantly higher proportion of participants who reported experiencing pain; however, the majority of those participants reported the least severe (mild) level of pain four weeks after surgery when compared to control participants' reported pain severity. Additionally, the **intervention** group had the lowest proportion of participants reporting limitation in surgical arm range-of-motion.

b. *Degree of Limitation* (please see **Tables 12 and 13**): Of those who experienced the four most frequently reported symptoms following surgery, all were asked to rate the extent to which each symptom limited their regular daily activities on a five point scale (not at all, small extent, some extent, great extent, very great extent). Between group mean differences in the degree of limitation experienced were assessed using ANOVA, and no statistically significant differences in mean scores of symptom experience were found (see **Table 12**). Trends in the data indicate that **intervention** participants, when compared to the control A and B participants, reported the highest proportion in the no limitation ("not at all") category for all four symptoms (pain, fatigue, numbness/tingling, and surgical arm range-of-motion) four weeks after surgery (see **Table 13**).

Analysis by Total Sample

c. *Relationship with Other Variables* (please see **Table 14**): Since the four symptoms of pain, fatigue, numbness/tingling, and limitation in surgical arm range-of-motion were the most commonly reported across all groups, we conducted further descriptive and bivariate analyses of these variables using the entire sample (n=240). We found that 36.3% (n=87) reported experiencing all four symptoms; 42.9% (n=103) reported having pain, fatigue and limitation in arm range-of-motion; 44.6% (n=107) reported experiencing pain, fatigue, and numbness; and 59.2% (n=142) reported having both pain and fatigue. Therefore, we selected the combination of pain and fatigue, which included over half of all study participants, and tested for differences between those who had both of these symptoms and those who did not experience pain and fatigue. Mean scores were used for upper body functional status, quality of life, anxiety, symptoms, and other health problems (comorbids). The results showed that women who experienced both pain and fatigue had significantly more limitation in functional activities that involved use of the upper body, lower total quality of life along with lower physical,

social/family, emotional, and functional quality of life, greater anxiety, a greater number of other symptoms, and a greater number of other health problems (comorbids) ($p<.01$ to $p<.05$), than women who did not experience both pain and fatigue.

6. Anxiety

Analysis for Between and Within Group Differences

a. *State Anxiety* (please see **Table 15**): State anxiety was measured for all participants before and after surgery. The instrument consisted of 20 items, which were rated on a 1 to 4 scale, where 1 equaled least anxiety and 4 equaled most anxiety. Responses for all items were then summed to create a total state anxiety score. Repeated measures ANOVA was used to assess between group differences for both pre- and post-surgery scores. No between group differences were found. Within group comparisons were made using paired-sample t-tests, and revealed a significant decrease in anxiety for all 3 groups from before to after surgery ($p<.001$). Trends in the data indicate that women in the **intervention** group reported the greatest decrease in anxiety, as well as the lowest level of anxiety four weeks after surgery when compared to the control groups.

Analysis by Total Sample

b. *Relationship with Other Variables* (please see **Tables 10, 14, and 16**): For the total sample (n=240), correlations and t-tests were conducted to determine the relationship of anxiety with quality of life, functional status, and other symptoms. As reported earlier, higher anxiety scores were significantly related with poorer quality of life (total and subscales), and more severe limitation in upper body functioning (see Table 10), as well as experiencing the symptom complex of pain and fatigue (see Table 14). Higher anxiety scores were further found to be significantly related with four psychosocial symptoms: Trouble sleeping, mood changes, difficulty concentrating, and poor appetite ($p<.01$) (see Table 16).

7. Quality of Life (please see **Table 17**)

Analysis for Between and Within Group Differences

Quality of life was measured for all participants before and after surgery. Six subscales covered various areas of quality of life: physical well-being, family and social well-being, relationship with doctors, emotional well-being, functional well-being, and additional (breast cancer specific) concerns. The subscales consisted of 2 to 7 items. All items were scored on a 0 to 4 point scale, where 0 equaled the lowest quality of life and 4 equaled the highest quality of life. A summed score was then created for each subscale. Between and within group differences for both pre- and post-surgery responses were assessed using repeated measures ANOVA. No significant between group differences were found. For within group pre- to post-surgery comparisons, paired sample t-tests were used. All three groups reported significant improvements in emotional well-being ($p<.001$). In addition, the **control A** group showed significant improvement from pre- to post-surgery in the area of additional concerns ($p<.05$); while the **intervention** group showed significant improvements in the areas of additional concerns ($p<.01$) as well as social/family well-being ($p<.05$). Both the **control A** participants and the **intervention** participants reported a significant decline in physical well-being ($p<.01$) from pre- to post-surgery.

8. Use of Health Services

Analysis for Between Group Differences

a. *Health Services* (please see **Table 18**): The length of hospital stay and utilization of six health services by the three groups within four weeks post-surgery were compared using the chi-square test for categorical variables and ANOVA. The number of hours after surgery that women were discharged from the hospital was calculated by subtracting admission date/time from discharge date/time. The majority of the total sample (90%) were discharged within the anticipated 48 hours or less after surgery. A significantly higher percentage of **control** participants (**A & B combined**) exceeded the 48 hour stay after surgery (14.3%), when compared to the **intervention** participants (5.8%) ($p<.05$). In addition, the **intervention** group had a lower (non-significant) mean hospital stay (M=21.50 hours) when compared to the combined control groups (M=24.38). When five outliers were eliminated from the total sample, the **intervention** group hospital stay became significantly shorter ($p<.05$). The outliers had stays ranging from 75 to 96 hours, and all underwent single or double mastectomy as surgical treatment for their breast cancer.

All participants were asked about six health services they had utilized since surgery. Trends in the data indicate that women who received the **intervention** reported the lowest utilization on 3 of the 6 services (primary care, emergency room, and re-hospitalization) when compared to the control groups. In addition, the study nurses made an average of 2.50 home visits per **intervention** participant, which was significantly fewer than the **control A** participants who received an average of 6.41 home visits from agency nurses ($p<.001$).

Analysis by Total Sample

b. *Relationship with Other Variables*: For the total sample (n=240), correlations were conducted to determine the relationship between the length of hospital stay, age, and other health problems (comorbids). We found that length of hospital stay was positively related to age ($p<.05$), and number of other health problems (comorbids) ($p<.05$). That is, women who were older or had a greater number of other health problems (comorbids), were more likely to have a longer hospital stay, regardless of which study group they were in.

9. Use of Complementary Therapies (CTs) (please see **Table 19**)

Analysis for Between Group Differences

The use of 19 CTs for the treatment of breast cancer were assessed. To test for between group differences on the use of specific CTs, chi-square analysis and ANOVA were used. Approximately 50% or more of each group reported using at least one CT to address their post-breast-cancer-surgery needs. A significantly greater proportion of the **control A** participants reported using special vitamin therapy and therapeutic massage ($p<.05$). Trends in the data showed that the most frequently used therapy by all three groups was special vitamin therapy. When looking at the variety of therapies used, the **intervention** and **control B** groups used 13 different types of therapies, while the **control A** group used 11 therapies. The mean number of therapies used by each group did not vary significantly.

10. Out-of-Pocket Expenses During the Four Weeks Following Surgery (please see **Table 20**)

Analysis for Between Group Differences

Participants were asked to estimate their out-of-pocket costs in five areas: complementary therapies, medications, special supplies (i.e., dressings for the surgical wound), additional costs (i.e., increased utility bills, ordering more take-out food than ususal, or travel expenses to have a relative stay with them), and total estimated out-of-pocket costs (estimated by participants) incurred over the four week period following surgery. ANOVA was used to assess for between group differences in out-of-pocket costs by the three groups. There were no significant differences found between groups, thus the following findings reflect trends in the data. Excluding total out-of-pocket costs, the additional costs category proved to be most expensive for all three groups. The **control B** group incurred the greatest expense in four of the five areas assessed: Medication expenses (M=$18.68), special supplies (M=$25.28), additional expenses (M=$246.17), and total out-of-pocket expenses (M=$205.26).

B. Intervention Protocol Data

Intervention protocol data was obtained only for the **intervention** group (n=121); therefore this portion of the report is not a comparative analysis with the **control** groups.

1. Nursing Contacts Related to the Intervention Protocol (please see **Table 21**)

As mentioned earlier, the mean number of home visits per participant was 2.50 visits, and the mean number of phone contacts was 4.65. In terms of nursing care time, the mean number of minutes spent providing direct nursing care was 53.76 minutes per visit; the mean number of minutes spent per telephone encounter was 13.48 minutes in direct assessment and consultation between patient and nurse; and an additional mean of 0.59 minutes was spent on coordination of care with other health professionals via telephone. Record-keeping per home visit averaged 41.21 minutes. The total mean time needed to implement the intervention (including all visits, phone calls, home visit charting, and coordination of care) was 299.2 minutes or 4.99 hours.

2. Most Frequently Occurring Patient Problems (please see **Table 22**)

We continued to use our standardized protocol and patient problems as developed for this study and outlined in the Year 1 Annual Report. For the overall group of intervention participants (n=121), a total of 25 problems have been utilized with a mean of 14.15 problems per participant. Thirteen of the problems are included in our standard protocol which is divided into seven major categories specific to the post-surgical breast cancer patient: Included are pain, fatigue, constipation, anxiety, quality of life, incision care, and health education needs. The remaining 12 problems were addressed to meet the individual needs of the various participants as assessed by the study nurse.

C. Chart Audit Data (please see **Table 23**)

Data on post-surgical events, such as cancer staging, complications, further surgeries, and follow-up visits to the surgeon were collected via medical record audits four months after the initial surgery. There were no statistically significant differences between the three groups. Unless otherwise specified, the following data represents trends in the total sample.

The majority of women in our sample had stage 1 or stage 2 tumors (94.2%). The most common complication to develop post-surgically and require a return visit to the surgeon, was a fluid-filled mass known as a seroma (24.6%). Control B participants were the most likely to develop a

seroma (29.1%), while intervention participants were the least likely (22.3%). Infection and difficulty with the surgical drain were other complications that occurred. Again, the control B group had the greatest number of women requiring return visits to the surgeon for these two complications (12.7%) while the intervention group had the lowest percentage (5.8%). A total of 14.2% of women required one or more further surgeries for their breast cancer. Six women (2.5%) had to undergo more than one additional surgery. The most common further surgeries were mastectomy (5.4%) and other surgeries (6.3%), e.g., infusaport placement for chemotherapy administration.

Post-surgical follow-up visits to the surgeon in the four months after the surgery were classified into three groups: 1) total number of visits; 2) routine visits; and 3) non-routine visits for complications. The mean number of total follow-up visits was 4.32. The majority of women's visits were for routine follow-up (M=3.34). Of the total sample, 30% had follow-up visits due to complications. Of those who had complications, the mean number of visits required to address these non-routine issues were 2.70.

IV. DISCUSSION

The following discussion is based on a sample size of n=240. It is presented in relation to the Statement of Work, the specific aims, and the hypothesis of the study.

A. Specific Aims and Hypothesis

Our subacute care in-home nursing intervention was targeted to help women attain optimal recovery during the two week period immediately following short-stay surgery for breast cancer, and assist them in regaining their pre-surgical health status prior to initiating adjuvant therapy. This study tested the hypothesis that when compared to women who are undergoing breast cancer surgery and receive conventional post-surgical care, recipients of our subacute care intervention will report: 1) Improved surgical recovery and self-care knowledge, 2) higher functional status (ADLs), 3) fewer symptoms, 4) lower anxiety levels, 5) higher quality of life, 6) less frequent use of health services, and 7) fewer out-of-pocket payments for health care services.

B. Post-Test Interview Data Discussion

1. Demographics

Since there were no significant differences between the three groups (**intervention, control A, control B**) on demographics, all groups were combined and demographics were reported as a total sample. This similarity among groups was anticipated due to our randomization process. The majority of the sample consisted of Caucasian, married, middle-aged women of moderate income and relatively high education, who underwent lumpectomy with axillary node dissection as their initial treatment for breast cancer.

2. Surgical Recovery

Discussion of Data Analyzed by Group

a. *Infection Status and Antibiotic Use*: Regardless of study group, the majority of women who used antibiotics did so to prevent infection. This trend highlights the importance of preventing infection during recovery from breast cancer, since even a mild infection can later lead to the development of serious complications such as lymphedema.

b. *Surgical Arm Range-of-Motion (ROM) Status*: A key part of the nursing protocol for **intervention** participants was to teach and encourage ROM exercises following surgery. A significantly higher proportion of the **intervention** participants reported receiving instruction on ROM exercises, as well as having more time spent on this education, when compared to either control group. A greater (non-significant) number of women receiving the **intervention** reported experiencing no limitation in range-of-motion four weeks after surgery (Table 10). Thus, this trend in receiving education on range-of-motion may be helpful in getting women to do the exercises that increase arm flexibility, and decrease their functional limitation post-surgery.

3. Self-Care Knowledge

Discussion of Data Analyzed by Group

a. *Breast Self-Exam (BSE)*: Knowledge of BSE was very similar across groups, except that a significantly greater proportion of the **intervention** participants reported correctly using one of the four techniques. It may be that having the exam demonstrated by a nurse (**intervention**), helped women to better understand some of the mechanics to the exam, i.e., using the pads of the fingers rather than some other method.

b. *Lymphedema Prevention*: A significantly greater proportion of **intervention** participants reported receiving teaching on prevention of this serious complication. Since the majority of the sample had axillary lymph node dissection, this is critical information. It is of concern that a significantly lower proportion of women in the control groups are not receiving lymphedema information, and when no nurse is involved in care (**control B**), only about one-half of the women receive any information. Anecdotally, many women reported during their post-test interview that they may have been given some written materials on lymphedema, but received no instruction and minimal emphasis on the potential significance of this condition. While none of our participants experienced lymphedema during the first four weeks post-surgery, lymphedema can occur months after surgery and women must be educated on the techniques for prevention. Even with the surgical trend toward sentinel node dissection, it is not clear to what extent this procedure will decrease the risk of lymphedema.

4. Functional Status (ADLs)

Discussion of Data Analyzed by Group

a. *Frequency of Limitations*: The majority of the total sample experienced a significant decrease in physical functioning post-surgery (4 weeks after) related to vigorous activities, pushing heavy objects, lifting activities that involve ten pounds or more, and moderate activities. Since most of these activities tend to be strenuous, it may take women longer than a month to resume their pre-surgical levels of activity.

b. *Severity of Limitations*: A trend in the data showed that women receiving the **intervention** had the lowest proportion of participants experiencing an increase in severity of functional status limitation on three of the top four activities from before to after surgery (vigorous activities, pushing heavy objects, and lifting over ten pounds). Therefore, having a study

nurse may begin to impact these limitations during the first 4 weeks after surgery. Clearly, most women who undergo breast cancer surgery are experiencing limitations at 4 weeks post-surgery.

c. *SF36 Physical Functioning Subscale*: On the subscale of 10 physical functioning SF-36 items (vigorous activity, moderate activity, lifting or carrying groceries, climbing several flights of stairs, climbing one flight of stairs, bending/kneeling/stooping, walking more than one mile, walking several blocks, walking one block, and bathing self), the post-surgical score for our total sample (M=69.21, SD=21.97) fell far below the 1998 general U.S. population score (M=83.29, SD=23.76) reported in the SF36 Health Survey Manual and Interpretation Guide.[10] This illustrates the great impact that breast cancer surgery has on physical functioning, and indicates that there is still a need for supportive care related to these limitations beyond the four week post-surgical time frame of this study.

Discussion of Data Analyzed by Total Sample

d. *Relationship with Other Variables*: Women who experience greater upper body limitation, also report significantly lower quality of life (total and subscales), and significantly higher levels of anxiety. This may point to the fact that when one has lower physical functioning, the psychosocial health also suffers. These findings underscore the need for interventions that address physical issues (i.e., regaining upper body functioning post-surgery), and their impact on psychosocial issues (i.e., quality of life and anxiety).

5. Symptoms Experienced Following Surgery

Discussion of Data Analyzed by Group

a. *Frequency and Severity*: All three groups reported experiencing a comparable number and range of symptoms. Following the trend established during Years I through IV of the study, we continue to see 60% or more of participants reporting pain and fatigue as their most common symptoms, while limited arm range-of-motion and numbness/tingling are now similarly reported across all groups. The **intervention** group had the lowest proportion of women reporting limitation in arm range-of-motion, and the greatest proportion of women reporting mild severity (compared to moderate or severe) on pain. This trend may indicate that such an intervention can help minimize symptom severity.

b. *Degree of Limitation*: A trend in the data showed that **intervention** participants had the lowest mean score for degree of limitation on three of the four most commonly reported symptoms (pain, numbness/tingling, and surgical arm range-of-motion). Additionally, **Intervention** women reported the highest proportion of "no limitation" 4 weeks after surgery on pain, fatigue, numbness/ tingling, and surgical arm range-of-motion, when compared to the control groups. Of those who reported pain as causing some degree of limitation, the greatest percentage of **intervention** participants reported that pain limited them to a "small extent," while a greater proportion of both **control** groups (**A & B**) reported that pain limited them to "some extent" or greater, i.e., more than a "small extent." While differences are not statistically significant, the study nurse appears to be managing limitations caused by symptoms more successfully than either of the control groups.

Discussion of Data Analyzed by Total Sample

c. *Relationship with Other Variables*: Women who experience a combination of key symptoms after surgery (i.e., pain and fatigue) are also likely to have a significantly greater number of other health problems, both physical and psychosocial. Physically, they are more likely to experience upper body functional limitations, a greater number of other symptoms, and have more comorbids. Psychosocially, these women are more likely to report having lower quality of life and increased levels of anxiety. These findings emphasize the need for interventions aimed at minimizing symptoms post-surgery (especially pain and fatigue), so as to decrease the number of other physical and psychosocial concerns encountered.

6. Anxiety

Discussion of Data Analyzed by Group

a. *State Anxiety*: Based on repeated measures ANOVA, we found a significant within group reduction in state anxiety from pre- to post-surgery for all three groups. This would be expected since anticipation of the surgical experience would be likely to create anxiety for all women, and conversely, decrease anxiety once the surgical experience was behind them. However, while not statistically significant, the **intervention** group demonstrated the greatest decrease in anxiety and the lowest level of anxiety post-surgery when compared to the control groups. The targeted psychosocial support provided by the study nurse may have impacted this outcome.

Discussion of Data Analyzed by Total Sample

b. *Relationship with Other Variables*: The correlational analysis on post-surgery data showed that increased anxiety was significantly related with a multitude of other physical and psycho-behavioral variables. It is difficult to say whether the physical difficulties contribute to the psychological distress or vice versa. It does point to the need for interventions that extend beyond the first two weeks after surgery in both of these areas.

7. Quality of Life

Discussion of Data Analyzed by Group

Intervention women reported significant within-group improvement in 3 areas of quality of life after surgery, compared to two areas of improvement for the control A participants, and one area for the control B women. As would be expected, physical well-being showed a decline after surgery across all three groups. This trend towards a decline in quality of life can be attributed to the fact that women were only 3 to 5 weeks post-surgery at the time of the post-test, and they were still recovering. This again, as with physical functioning findings, points to the on-going need for physical recuperative interventions that extend past the first 4 week post-surgical time period.

8. Use of Health Services

Discussion of Data Analyzed by Group and Total Sample

a. *Health Services*: A goal of this study was to provide cost effective, comprehensive, physical care, emotional care, and health education to women following breast cancer surgery. Trends in the data demonstrate that women in the **intervention** group reported the lowest percentage of primary care visits, emergency room visits, and re-hospitalizations after surgery,

among the three groups. In addition, **intervention** women received significantly fewer (less than half the number) nursing visits as compared to control A participants, with similar or better results. The trend toward a shorter hospital stay for intervention women was an unexpected finding since there were no significant differences in pre-surgical demographics or comorbids. However, it does appear that women who are older and have more comorbids also have a longer hospital stay, regardless of study group.

9. Complementary Therapies (CTs)

Discussion of Data Analyzed by Group

The majority of women were using complementary therapies in addition to customary medical care. We realize that CT use is becoming more common practice among cancer patients. While this is only a trend in our data, it is interesting to note that **control A** participants seem to be the most involved in supplementing their care with CTs since they had the highest proportion using one or more therapies. This higher use may be an attempt to supplement conventional health care; whereas, the **intervention and control B** women explored the largest number of different types of CTs. Based on the expressed interest by our sample, this is an area where research is needed to determine the efficacy of various CTs with breast cancer patients.

10. Out-of-Pocket Expenses

Discussion of Data Analyzed by Group

As mentioned in the annual reports for Years I through IV, some participants continued to be reluctant to discuss finances. Based on trends in our data, the **control B** group, who did not have any form of nursing care, incurred the greatest expense in four of the five areas assessed. Perhaps having a nurse helps women reduce personal costs through greater self-care education, and more awareness of resources in the community, which reduces the need for some out-of-pocket expenses.

C. Intervention Protocol Data Discussion

1. Nursing Contacts Related to the Intervention Protocol

When comparing our intervention data with our post-test interview data, we are able to see differences between our **control A** and **intervention** participants. Consistent with the findings for Years I through IV, the **intervention** participants are requiring less than half the number of home visits when compared to **control A** participants who receive agency home care. This may be partially accounted for by the fact that our **intervention** nurses provide a very targeted self-care protocol during their visits, rather than performing fee-for-service care for the woman.

Our protocol encourages independence and self-care competency for women in the **intervention** arm of the study. In addition, the **intervention** nurses make an average of 5 telephone contacts to the women, which assists the women in managing their own care. Our study has contributed to the post-operative knowledge base by documenting the optimal amount of nursing care needed in the first two weeks following breast cancer surgery to achieve the most desirable outcomes. While we do not have information on agency home care in terms of the amount of time spent in the home per visit, record keeping, and coordination of

care by the nurses, we feel that the approximately one hour per home visit spent by our intervention nurses, along with the 41 minutes of record-keeping time is very reasonable and cost effective.

2. Most Frequently Occurring Patient Problems

Our standardized protocol (which includes 13 specific patient problems) provided for assessment of seven categories which are specific for the post-surgical breast cancer patient: pain, fatigue, constipation, anxiety, quality of life, incision care, and health education needs. In addition to the protocol patient problems, our home care nurses individualized their assessment to each woman's needs. Some of these additional areas of need dealt with nausea, community resource needs, depression, and education regarding potential seroma formation. The additional patient problems addressed the unique needs of each individual woman.

D. Chart Audit Data Discussion

Although there were no statistically significant differences between groups on the chart audit data, there were some interesting trends to note. In regards to post-surgical complications, the control B group (which received no nursing care) had the greatest proportion of women who developed a seroma, infection, or had difficulty managing their surgical drain. They also had the highest mean number of total post-surgical visits to the surgeon visits. This may be an indication that having home care nursing following surgery reduces the need for some follow-up surgeon visits. Education provided by the nurse may have helped to minimize the potential for infection development or resolve difficulties with the drain. In addition, the nurse may have helped support the "worried well" by being available to answer questions, thus reducing the need to go in to the surgeon's office for unnecessary assessments. The major implication of these trends is that by reducing the number of post-surgical visits to the surgeon, there is a cost savings to the healthcare system.

KEY RESEARCH ACCOMPLISHMENTS AND TRENDS

Among all women in our study who had a post-surgical agency/hospital stay of 48 hours or less (M=23.13), we have investigated 3 types of follow up care: 1) our targeted post-surgical nursing in-home care intervention referred to as the "subacute care intervention"; 2) surgeon-ordered agency nursing care in the home; and 3) no nursing care after discharge. Both statistically significant findings and non-significant trends in the data will be summarized here.

Significant Findings:

- "Subacute care intervention" participants received an average of 2.50 home visits, which was significantly fewer than the control participants (agency nursing care group), who required an average of 6.41 home visits to attain comparable physical, emotional, and educational outcomes.

- A significantly greater number of women who received the targeted "subacute care intervention" reported receiving teaching on correct techniques for surgical arm range-of-motion exercises and protective measures against lymphedema, and reported utilizing one of the four recommended breast self-exam techniques, than those who received agency nursing care or no nursing care in the home. Additionally, women receiving the "subacute care intervention" reported receiving a significantly greater number of teaching sessions related to surgical arm range-of-motion and lymphedema prevention, i.e., more comprehensive care.

- Women receiving the "subacute care intervention" reported significant improvements from pre- to post-surgery in three of the six quality of life areas assessed. Those receiving agency nursing care reported significant improvements in two areas, while women receiving no nursing care improved in only one area.

- Women in all three study groups reported a significant decrease in anxiety from pre- to post-surgery. However, those who received the "subacute care intervention" reported the trend of the greatest amount of decrease and the lowest post-surgery anxiety levels. Higher post-test anxiety scores were found to be significantly related to poorer quality of life, more severe limitations in upper body functioning, and the symptoms of pain and fatigue. High post-test anxiety scores were also found to be significantly related to the psychosocial symptoms of trouble sleeping, mood changes, difficulty concentrating, and poor appetite.

- Across the total sample (all three study groups), women reported significant increases in functional limitation from pre- to post-surgery. The areas most commonly affected were moderate and vigorous activities, as well as pushing and lifting activities. Functional limitations related to upper body activities were found to be significantly correlated with decreased quality of life and increased anxiety.

- A high risk group appears to be women who experienced the symptoms of pain and fatigue. These women had significantly more limitation in upper body functioning, lower quality of life, higher levels of anxiety, and experienced a greater number of other symptoms as well as other health problems (co-morbids).

- A significantly greater number of women receiving agency care were supplementing their care with complementary therapies, including such therapies as special vitamin therapy and therapeutic massage.

Trends in the Data:

- A greater number of women who received the targeted "subacute care intervention" reported less use of health services post-surgically (e.g., primary care, emergency room, and re-hospitalization) compared to the control groups, and thus potentially experienced less out of pocket cost.

- A lower proportion of the women who received the targeted "subacute care intervention" reported experiencing limitation in their surgical arm range-of-motion following surgery.

- Women in the "subacute care intervention" reported the lowest symptom severity on a key symptom (e.g., pain) when compared to those who received agency nursing care or no nursing care. Of those participants who experienced the symptoms of pain, fatigue, numbness/ tingling, and limitation in arm range-of-motion, a non-significant trend shows a greater proportion of women receiving the "subacute care intervention" reported that these symptoms caused "no limitation" in activities of daily living.

- A cost trend demonstrated that women who did not receive post-surgical nursing care, reported the highest level of out-of-pocket cost in 4 of 5 areas (medications, special supplies, additional expenses, and total out-of-pocket expenses), when compared to the groups who had a study or agency nurse.

- During the four months following surgery, women in the group that did not receive post-surgical nursing care had the highest mean number of total post-surgical follow-up visits to their surgeon. In addition, this group had the greatest proportion of women who developed post-surgical complications.

REPORTABLE OUTCOMES

I. PUBLICATIONS (See **Appendix A** for Publications)

1. Wyatt, G.K., Friedman, L.L., & Beckrow, K.C. (Submitted 2001). Efficacy of an in-home intervention following short-stay breast cancer surgery. Submitted to the 2001 Oncology Nursing Society Congress, San Diego, CA, for Outstanding Research Paper Award..
2. Wyatt, G.K. & Beckrow, K.C. (2000). A nursing protocol for subacute recovery following breast cancer surgery. Workgroup of European Nurse Researchers Proceedings Book, 431-437.
3. Bloomfield, M. (1999). The effects of early versus delayed exercise on seroma formation and range-of-motion recovery in short-stay breast cancer surgery patients. Master's thesis, Michigan State University, East Lansing, Michigan.

II. PRESENTATIONS (See **Appendix C** for Grant Productivity)

1. Wyatt, G.K. (2001, March 21). Program of breast cancer research. Invited speaker for the Komen Foundation, Lansing, MI.
2. Wyatt, G.K. (2001, February 8-10). Physical and psychosocial outcomes of breast cancer patients participating in a post-surgical nursing protocol. Poster presentation for the ONS 6th National Conference on Cancer Nursing Research, Ponte Vedra Beach, FL.
3. Wyatt, G.K. & Beckrow, K.C. (2000, May 25). A nursing protocol for subacute recovery following breast cancer surgery. Paper presentation for the 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland.
4. Wyatt, G.K. (2000, April 13). An upper body yoga intervention for women after breast cancer surgery. Presentation at Surgical Grand Rounds, Sparrow Health System. Continuing medical education units provided to attendees.
5. Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November 5). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. Poster session presented at the First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI.
6. Smania, M., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, October 19). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the American Cancer Society's Great Lakes Cancer Nursing Conference, Novi, MI.
7. Rovoll, M.D. & **Wyatt, G.K.** (1999, May 13). The challenges of quality assurance in data entry. Paper presented at the 22nd Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.
8. Beckrow, K.C., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, April 20). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the Seventh Annual Greater Lansing Nursing Research Day, Ingham Regional Medical Center, Lansing, MI.
9. Wyatt, G.K. (1998, November 20). Nurse sensitive outcomes for the short-stay breast cancer patient. Paper presented at the Oncology Nursing Society's State-of-the-Knowledge Conference on Nurse Sensitive Outcomes, Pittsburgh, PA.

10. Wyatt, G.K., Beckrow, K.C., & Bloomfield, M. (1998, June 16). Breast cancer awareness. Paper presented at the Nursing Continuing Education Summer Tuesday Evening Series: Women's Health Issues, Michigan State University, East Lansing, MI.
11. Wyatt, G.K., Given, B.A., & Given, C.W. (1998, May 7-10). Bridging the gap between nursing outcomes and the research process: One-step computerized documentation and direct data entry. Poster session presented at the Oncology Nursing Society's 23rd Annual Congress — On Track to a Changing World, San Francisco, CA.
12. Bloomfield, M. & **Wyatt, G.K.** (1998, April 30). Post-operative seroma formation following breast cancer surgery. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.
13. Beckrow, K.C. & **Wyatt, G.K.** (1998, April 30). The impact of an in-home nursing intervention for women following short-stay surgery for breast cancer. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.
14. Bloomfield, M. & **Wyatt, G.K.** (1998, April 29). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Greater Lansing Nursing Research Consortium, Nursing Research Day, Lansing, MI.
15. Sprague, J. & **Wyatt, G.K.** (1998, April 27). Bridging the gap between nursing outcomes and the research process. Poster session presented at the Undergraduate Research Opportunity Program (UROP) 1997-98 Banquet, Michigan State University, East Lansing, MI.
16. Bloomfield, M. & **Wyatt, G.K.** (1998, April 3-4). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Graduate School and Council of Graduate Students (COGS), Research Recognition Day, Michigan State University, East Lansing, MI.
17. Wyatt, G.K. (1998, February 17). Nursing care for breast cancer project. Invited speaker, College of Nursing Research Center Seminar Series, Michigan State University, East Lansing, MI.
18. Wyatt, G.K., Given, B.A., & Given, C.W. (1997, October 31-November 4). A subacute care intervention for short-stay breast cancer surgery. Poster session presented at the Department of Defense Breast Cancer Research Program Conference — Era of Hope: A Multidisciplinary Report of DoD Progress, Washington, D.C.
19. Wyatt, G.K. (1997, October 21). Breast cancer: Post-surgical care. Invited speaker, American Cancer Society's 30th Anniversary Great Lakes Cancer Nursing Conference, Novi, MI.
20. Wyatt, G.K. (1996, November). New DOD funding for breast cancer transition care research. Invited speaker, College of Nursing Research Center Seminar Series, Michigan State University, East Lansing, MI.

III. ADDITIONAL GRANT PRODUCTIVITY (See **Appendix D** for P.I.'s Curriculum Vitae, and **Appendix E** for Personnel Listing)

CONCLUSIONS

I. SUMMARY OF RESULTS

Overall, the women who received the **intervention** were discharged from the hospital sooner, received less than half the number of nurse visits, and showed a trend toward using fewer health services post-discharge, when compared to controls, and yet achieved comparable or better physical, emotional, and educational outcomes. Women in the **intervention** arm of the study received follow-up care in the home on the average of 2.50 **visits** and 4.65 **phone calls** in the first 14 days post-operatively by a study nurse, which was significantly fewer than the 6.41 visits that women in the **control A** arm of the study received from agency home care. When compared to controls, the **intervention** group also achieved statistically significant outcomes in several other areas, including education regarding range-of-motion exercises, breast self-exam, and the prevention of lymphedema, as well as improvements in a greater number of areas of quality of life. Other trends for **intervention** women included, a greater reduction in anxiety, lower symptom severity and limitation on some key symptoms, and potential for greater cost savings by utilizing fewer health services (e.g., primary care, emergency room, re-hospitalization). Women who had a nurse **(intervention or control A)** showed a trend toward having fewer post-surgical follow-up visits with their surgeon as well as fewer post-surgical complications in the four months following surgery, than women who did not have a nurse. The area where all women reported limitation at 4 weeks after surgery was in functional status. They remained limited in range-of-motion and activities of daily living (ADLs) and all reported a lower physical quality of life. In addition, upper body functional limitations were found to be significantly correlated with decreased quality of life and increased anxiety. Thus, future research must address the physical functioning and emotional needs that continue beyond 4 weeks after surgery.

II. EVALUATION OF KNOWLEDGE AS A SCIENTIFIC PRODUCT

The findings and trends from our work could be utilized to establish national policy for discharge planning in terms of length of hospital stay, standard of care for subacute post-surgical needs, optimal amount of nursing care necessary to achieve favorable outcomes, and associated costs.

A. Policy on Length of Stay: Our research demonstrates that an average of 21.50 hours is adequate to hospitalize women for breast cancer surgery, when they receive a subacute care nursing intervention in the home following discharge. Rather than the current emphasis on length of hospital stay, we propose a shift in the focus to high quality, standardized nursing care in the home.

B. Policy on Standard of Care: A targeted subacute care protocol can achieve desirable physical, psychological, and educational outcomes post-surgically in the home, while demonstrating trends toward reducing the use of costly medical services (i.e., primary care, emergency room, and re-hospitalizations).

C. Policy on Dose of Post-Surgical Home Care: A nursing care dose of 2.50 home visits (utilizing the subacute care protocol) can achieve comparable or better physical, psychological, and educational outcomes than over twice this number of visits by an agency nurse. Cost savings would be expected to be similarly proportional.

D. Policy on Necessary and Allowable Out-of-Pocket Costs: Utilizing a targeted nursing-based protocol following discharge for breast cancer surgery may help standardize reasonable and necessary out-of-pocket costs for patients.

III. FUTURE WORK

There is currently a need for further research that focuses on the supportive care issues that women face following breast cancer surgery. With the recent trend toward less invasive surgery (i.e., sentinel node procedure rather than axillary dissection), the post-surgical physical recovery needs of women will be changing. The long-term emotional and psychological impact of diagnosis and treatment should also be re-evaluated as more women are diagnosed at younger ages and earlier stages. As younger women are diagnosed, young families and children are being impacted and are also in need of supportive interventions. Women and families could benefit from information on how to navigate the healthcare maze in order to find the resources to help with their treatment and recovery. Further research is also needed in the area of self-care interventions (i.e., complementary therapies) that women are implementing outside of the health care arena. There is a great need for research assessing the safety and efficacy of these therapies alone and in conjunction with other conventional and non-conventional treatments.

In order to further the research of the current DoD study, Dr. Wyatt recently developed a protocol which, in addition to providing the targeted subacute care intervention (to produce a common baseline), is aimed at addressing the needs of women following surgery and during the adjuvant therapy phase of care. These identified needs include physical limitations and lower physical quality of life which have been reported in this DoD study. We recently piloted a study that tested the effects of a supportive care intervention that incorporated upper body yoga stretches to address physical limitations, such as range-of-motion and activities of daily living. Along with the yoga, an educational component was created to address emotional issues, body chemistry, body image, chemotherapy, radiation, and financial considerations.

There is much that continues to be needed in the area of supportive care for women with breast cancer. We hope this DoD supported study and our entire program of research will make a substantial contribution to this goal.

REFERENCES

1. Oberst, M.T., & Scott, D.W. (1988). Post-discharge distress in surgically treated cancer patients and their spouses. Research in Nursing & Health, 11(4), 223-233.
2. Ganz, P.A., Schag, C.C., Polinsky, M.L., Heinrich, R.L., & Flack, V.F. (1987). Rehabilitation needs and breast cancer: The first month after primary therapy. Breast Cancer Research and Treatment, 10, 243-253.
3. Polinsky, M.L., Fred, C., & Ganz, P.A. (1991). Quantitative and qualitative assessment of a case management program for cancer patients. Health and Social Work, 16, 176-183.
4. Ellis, C. (1994). Short-stay surgery for mastectomy. Quality of Life: A Nursing Challenge, 3, 21-24.
5. Wyatt, G.K. (1996). Surgical recovery and self-care knowledge. Unpublished instrument.
6. Ware, J., Brook, R., Davies-Avery, A., Williams, K., Stewart, A., Rogers, R., Donald, C., & Johnston, S. (1980). Concept utilization and measurement of health for adults in the Health Insurance Study: Vol 1. Model of health and methodology (Publication No. R-1987/1-HEW). Santa Monica, CA: RAND Corporation.
7. Jette, A.M., Davies, A.R., Cleary, P.D., Calkins, D.R., Rubenstein, L.V., Fink, A., Kosecoff, J., Young, R.T., Brook, R.H., & Delbanco, T.L. (1986). The functional status questionnaire: Reliability and validity when used in primary care. Journal of General Internal Medicine, 1,143-149.
8. Stewart, A.L., Ware, J.E., & Barook, R.H. (1981). Advances in the measurement of functional status: Construction of aggregate indexes. Medical Care, 19, 473-488.
9. Ware, J.E., & Sherbourne, C.D. (1992). A 36-item short form health survey (SF-36). Medical Care, 30, 473-483.
10. Ware, J.E., Snow, K.K., Kosinski, M., & Gandek, B. (1993). SF-36 Health Survey: Manual and interpretation guide. Boston: The Health Institute, New England Medical Center.
11. Given, C.W., Stommel, M., Given, B., Osuch, J., Kurtz, M.E., & Kurtz, J.C. (1993). The influence of cancer patients' symptoms and functional status on patients' depression and family caregivers' reaction and depression. Health Psychology, 12, 277-285.
12. Spielberger, C.D., Gorsuch, R.L., Lushene, R., Vagg, P.R., & Jacobs, G.A. (1983). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press, Inc.
13. Cella, D.F. & Bonomi, A.E. (1994). Manual functional assessment of cancer therapy (FACT) scales and the functional assessment of HIV infection (FAHI) scale. Version 3. Chicago: Rush Cancer Institute.
14. Given, B.A. & Given, C.W. (1993). Conventional health service use. Unpublished instrument.
15. Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999). Complementary therapy use among older cancer patients. Cancer Practice, 7(3), 136-144.
16. Wyatt, G.K. (1996). Complementary therapy use. Unpublished instrument.
17. Given, C.W., Given, B.A., & Wyatt, G.K. (1996). Out of pocket costs following surgery. Unpublished instrument.
18. Wyatt, G.K. (1996). Post-surgical chart audit. Unpublished instrument.
19. Zar J. H. (1984). Biostatistical analysis (2nd ed.). Englewood Cliffs: Prentice Hall.
20. Fleiss, J.L. (1981). Statistical methods for rates and proportions (2nd ed.). New York: John Wiley & Sons.
21. Schlesselman, J. J. (1982). Case-control studies: Design, conduct, analysis. New York: Oxford University Press.
22. SPSS, Inc. (1998). SPSS base 8.0 user's guide for Windows. Chicago, Illinois.

TABLES

Table 1

DATA COLLECTION SCHEDULE

	TIME PERIOD	
MEASURES	**Pre-Surgery**	**Post-Surgery**
Demographic Data Sheet	✔	
Surgical Recovery & Self-Care Knowledge		✔
Functional Status (Modified SF-36)	✔	✔
Symptom Experience		✔
State Anxiety	✔	✔
Quality of Life (FACT-B)	✔	✔
Health Service Utilization		✔
Complementary Therapies		✔
Out-of-Pocket Health Costs		✔
Chart Audit *(4 months post-surgery)*		✔

Table 2

DEMOGRAPHICS

	Intervention (n=121)		Control A* (n=64)		Control B** (n=55)		Total Controls A & B (n=119)		Study Total (n=240)	
	n	%	n	%	n	%	n	%	n	%
Ethnicity										
Caucasian	111	91.7%	57	89.1%	52	94.5%	109	91.6%	220	91.7%
Other	10	8.3%	7	10.9%	3	5.5%	10	8.4%	20	8.3%
Marital Status										
Married	75	62.0%	46	71.9%	29	52.7%	75	63.0%	150	62.5%
Divorced/Separated	22	18.2%	10	15.6%	11	20.0%	21	17.6%	43	17.9%
Widowed	13	10.7%	5	7.8%	11	20.0%	16	13.4%	29	12.1%
Never married	11	9.1%	3	4.7%	4	7.3%	7	5.9%	18	7.5%
Employment Status										
Employed before surgery	57	47.1%	41	64.1%	38	69.1%	79	66.4%	136	56.7%
--Returned to work after surgery	31	54.4%	19	46.3%	22	57.9%	41	51.9%	72	52.9%
--Did not return to work after surgery	26	45.6%	22	53.7%	16	42.1%	38	48.1%	64	47.1%
Not employed before surgery	47	38.8%	23	35.9%	17	30.9%	40	33.6%	87	36.3%
Missing	17	14.1%	0	0.0%	0	0.0%	0	0.0%	17	7.1%
Education										
Completed graduate degree	22	18.2%	9	14.1%	13	23.6%	22	18.5%	44	18.3%
Completed college	17	14.0%	9	14.1%	6	10.9%	15	12.6%	32	13.3%
Completed some college	43	35.5%	26	40.6%	19	34.5%	45	37.8%	88	36.7%
Completed high school	28	23.1%	17	26.6%	13	23.6%	30	25.2%	58	24.2%
Completed some high school	9	7.4%	2	3.1%	2	3.6%	4	3.4%	13	5.4%
Completed grade school	2	1.7%	1	1.6%	2	3.6%	3	2.5%	5	2.1%
Type of Surgery										
Lumpectomy with node removal	99	81.8%	47	73.4%	38	69.1%	85	71.4%	184	76.7%
Mastectomy with node removal	19	15.7%	12	18.8%	15	27.3%	27	22.7%	46	19.2%
Simple Mastectomy	3	2.5%	5	7.8%	2	3.6%	7	5.9%	10	4.2%

	Intervention				Control A*				Control B**				Total Controls A & B				Study Total			
	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max
Income ($)	74	48,502	32,111	2,952-150,000	52	61,694	39,400	11,000-200,000	42	58,817	41,190	7,100-210,000	94	60,409	40,017	7,100-210,000	168	55,164	37,117	2,952-210,000
Age (years)	121	56.27	12.33	23-86	64	56.02	11.96	33-84	55	55.29	9.57	33-75	119	55.68	10.88	33-84	240	55.98	11.61	23-86

*Received nursing care provided by an agency nurse
**Received no nursing care

Table 3

SURGICAL RECOVERY: *ANTIBIOTIC USE*

	No Antibiotics		Used Antibiotics						Not Reported	
	Total		Total		*To Prevent Infection*		*To Treat Infection*		Total	
	n	%	n	%	n	%	n	%	n	%
Intervention (n=121)	89	73.6%	29	24.0%	19	65.5%	10	34.5%	3	2.5%
Control A* (n=64)	49	76.6%	15	23.4%	11	73.3%	4	26.7%	0	0.0%
Control B** (n=55)	44	80.0%	9	16.4%	6	66.7%	3	33.3%	2	3.6%
Total Controls A&B (n=119)	93	78.2%	24	20.2%	17	70.8%	7	29.2%	2	1.2%
Total (n=240)	182	75.8 %	53	22.1%	36	64.3%	17	30.4%	5	2.1%

*Received nursing care provided by an agency nurse
**Received no nursing care

Table 4

SURGICAL RECOVERY: *RANGE-OF-MOTION (ROM) EXERCISES*

	Intervention		Control A*		Control B**		Total Controls A & B	
	n	%	n	%	n	%	n	%
Received teaching for ROM exercises	95/104	91.3%*	48/64	75.0%	34/55	61.8%	82/119	68.9%

	Intervention			Control A*			Control B**			Total Controls A & B		
	n	M	SD	n	M	SD	n	M	SD	n	M	SD
Number of times ROM taught**	95/104	1.76	0.80	48/64	1.50	0.88	34/55	1.38	0.65	82/119	1.45	0.79

*$p<.001$
**$p<.04$
*Received nursing care provided by an agency nurse
**Received no nursing care

Table 5

SELF-CARE KNOWLEDGE: *BREAST SELF-EXAM (BSE)*

	Intervention		Control A*		Control B**		Total Controls A & B	
	n	%	n	%	n	%	n	%
Knowledge of BSE	119/120	99.2%	63/64	98.4%	51/54	94.4%	114/118	96.6%
BSE Technique								
--Use pads of fingers	116/118	98.3%*	58/63	92.1%	45/51	88.2%	103/114	90.4%
--Examine area under arm	97/118	82.2%	52/63	82.5%	42/51	82.4%	94/114	82.5%
--Check for lumps/thickening	112/117	95.7%	62/63	98.4%	49/51	96.1%	111/114	97.4%
--Do BSE same time each month	47/119	39.5%	27/63	42.9%	26/51	51.0%	53/114	46.5%

*$p<03$

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 6

SELF-CARE KNOWLEDGE: *LYMPHEDEMA PREVENTION*
(These data pertain only to women who had axillary lymph node dissection)

	Intervention		Control A*		Control B**		Total Controls A & B	
	n	%	n	%	n	%	n	%
Received teaching for lymphedema prevention	90/98	91.8%*	40/59	67.8%	26/53	49.1%	66/112	58.9%

	Intervention			Control A*			Control B**			Total Controls A & B		
	n	M	SD	n	M	SD	n	M	SD	n	M	SD
Number of times taught**	90/98	2.08	1.23	40/59	1.83	0.98	26/53	1.35	0.63	66/112	1.64	0.89

*$p<.001$
**$p<.02$
*Received nursing care provided by an agency nurse
**Received no nursing care

Table 7

FUNCTIONAL STATUS: *FOUR MOST FREQUENTLY REPORTED LIMITATIONS*

	Intervention							
	Before Surgery				After Surgery			
Most Frequently Reported Limits	**n**	**M**	**SD**	**Min/Max**	**n**	**M**	**SD**	**Min-Max**
Vigorous Activity*	104	2.69	0.58	1-3	104	1.74	0.74	1-3
Pushing Heavy Objects*	119	2.70	0.59	1-3	119	2.06	0.75	1-3
Lifting Objects > 10 lbs*	120	2.78	0.57	1-3	120	1.97	0.83	1-3
Moderate Activity*	104	2.91**	0.32	1-3	104	1.99	0.79	1-3
	Control A·							
Most Frequently Reported Limits	**n**	**M**	**SD**	**Min/Max**	**n**	**M**	**SD**	**Min-Max**
Vigorous Activity*	63	2.65	0.65	1-3	63	1.73	0.70	1-3
Pushing Heavy Objects*	58	2.78	0.53	1-3	58	2.05	0.76	1-3
Lifting Objects > 10 lbs*	63	2.67	0.65	1-3	63	1.90	0.76	1-3
Moderate Activity*	63	2.89**	0.41	1-3	63	1.95	0.75	1-3
	Control B··							
Most Frequently Reported Limits	**n**	**M**	**SD**	**Min/Max**	**n**	**M**	**SD**	**Min-Max**
Vigorous Activity*	54	2.68	0.64	1-3	54	1.66	0.70	1-3
Pushing Heavy Objects*	54	2.85	0.41	1-3	54	2.02	0.76	1-3
Lifting Objects > 10 lbs*	53	2.91	0.35	1-3	53	2.13	0.73	1-3
Moderate Activity*	54	2.72**	0.66	1-3	54	1.89	0.81	1-3

* $p < .001$ (within group comparison)
** $p < .05$ (between group comparison)
·Received nursing care provided by an agency nurse
··Received no nursing care

Table 8

FUNCTIONAL STATUS: *SEVERITY OF LIMITATIONS*

	Intervention		Control A*		Control B**		Total Controls A & B	
	n	%	n	%	n	%	n	%
Vigorous Activity								
No Change in limitation from Pre to Post	36/103	35.0%	20/63	31.7%	18/53	34.0%	38/116	32.8%
Increase in limitation from Pre to Post	67/103	65.0%	43/63	68.3%	35/53	66.0%	78/116	67.2%
Pushing Heavy Objects								
No Change in limitation from Pre to Post	58/118	49.2%	26/58	44.8%	22/54	40.7%	48/112	42.9%
Increase in limitation from Pre to Post	60/118	50.8%	32/58	55.2%	32/54	59.3%	64/112	57.1%
Lifting Objects 〉 10 lbs								
No Change in limitation from Pre to Post	53/120	44.2%	27/63	42.9%	21/53	39.6%	48/116	41.4%
Increase in limitation from Pre to Post	67/120	55.8%	36/63	57.1%	32/53	60.4%	68/116	58.6%
Moderate Activity								
No Change in limitation from Pre to Post	39/103	37.9%	19/63	30.2%	25/54	46.3%	44/117	37.6%
Increase in limitation from Pre to Post	64/103	62.1%	44/63	69.8%	29/54	53.7%	73/117	62.4%

*Received nursing care provided by an agency nurse
**Received no nursing care

Table 9

FUNCTIONAL STATUS: *SF 36 PHYSICAL FUNCTIONING SUBSCALE (10 ITEMS)*

	Before Surgery			After Surgery		
Group	**M**	**SD**	**Min/Max**	**M**	**SD**	**Min/Max**
Intervention (n=104)*	89.62	14.30	45-100	67.93	21.15	10-100
Control A (n=63)*	89.98	16.49	20-100	69.94	21.51	20-100
Control B (n=54)*	90.80	20.77	10-100	70.84	24.21	0-100
Total (n=221)*	90.01	16.63	10-100	69.21	21.97	0-100

* $p < .001$ (within group)

Note: Higher score = Better physical functioning

Table 10

FUNCTIONAL STATUS (UPPER BODY LIMITATION) - *RELATIONSHIP WITH OTHER VARIABLES (n=240)*

SUBSCALES	Quality of Life (QOL) (Total)	QOL - Physical (Subscale)	QOL - Emotional (Subscale)	QOL - Functional (Subscale)	QOL - Doctor Relation (Subscale)	QOL - Additional Concerns (Subscale)	State Anxiety
Functional Status (Upper Body Limitation)	-0.443*	-0.504*	-0.209*	-0.455*	-0.189*	-0.314*	0.261*

*$p<.01$ (2-tailed)

Table 11

SYMPTOMS EXPERIENCED FOLLOWING SURGERY: *FREQUENCY*

	Mean # of Symptoms (four weeks after surgery)	Standard Deviation # of Symptoms	Min-Max # of Symptoms	Possible Range of Total Symptoms
Intervention (n=121)	6.80	3.41	0-14	0-21
Control A‘ (n=64)	7.02	3.70	0-15	0-21
Control B“ (n=55)	6.44	3.15	0-13	0-21
Total Controls A & B (n=119)	6.75	3.45	0-15	0-21

Symptoms Reported by 60% or More of Each Group (four weeks after surgery)

	Intervention (n=121)		Control A‘ (n=64)		Control B“ (n=55)		Total Controls A&B (n=119)	
	n	%	n	%	n	%	n	%
Pain*								
No	24	19.8%	23	35.9%	17	30.9%	40	33.6%
Yes	97	80.2%	41	64.1%	38	69.1%	79	66.4%
Mild	52	53.6%	18	43.9%	19	50.0%	37	46.8%
Moderate	40	41.2%	20	48.8%	16	42.1%	36	45.6%
Severe	5	5.2%	3	7.3%	3	7.9%	6	7.6%
Fatigue								
No	29	24.0%	19	29.7%	16	29.1%	35	29.4%
Yes	92	76.0%	45	70.3%	39	70.9%	84	70.6%
Mild	47	51.1%	22	48.9%	21	55.3%	43	51.8%
Moderate	36	39.1%	23	51.1%	13	34.2%	36	43.4%
Severe	9	9.8%	0	0.0%	4	10.5%	4	4.8%
Numbness and Tingling								
No	37	30.6%	21	32.8%	13	23.6%	34	28.6%
Yes	84	69.4%	43	67.2%	42	76.4%	85	71.4%
Mild	37	44.0%	13	31.0%	20	47.6%	33	39.3%
Moderate	34	40.5%	23	54.8%	17	40.5%	40	47.6%
Severe	13	15.5%	6	14.3%	5	11.9%	11	13.1%
Limitation in Surgical Arm Range of Motion								
No	43	35.5%	18	28.1%	18	32.7%	36	30.3%
Yes	78	64.5%	46	71.9%	37	67.3%	83	69.7%
Mild	41	52.6%	22	47.8%	21	58.3%	43	52.4%
Moderate	31	39.7%	18	39.1%	11	30.6%	29	35.4%
Severe	6	7.7%	6	13.0%	4	11.1%	10	12.2%

‘Received nursing care provided by an agency nurse

“Received no nursing care

* $p<.05$

Table 12

SYMPTOMS EXPERIENCED FOLLOWING SURGERY: *DEGREE OF LIMITATION (Version 1)*

	Intervention				Control A*				Control B**			
Symptom	**n**	**M**	**SD**	**Min/ Max**	**n**	**M**	**SD**	**Min/ Max**	**n**	**M**	**SD**	**Min/ Max**
Pain	96	2.15	1.04	1-5	41	2.54	1.23	1-5	38	2.39	1.03	1-5
Fatigue	91	2.30	1.16	1-5	45	2.27	1.10	1-5	38	2.45	1.13	1-5
Numbness & Tingling	83	1.67	1.05	1-5	42	1.95	1.17	1-5	42	1.81	0.99	1-4
Limitation in Surgical Arm Range of Motion	77	2.31	1.15	1-5	46	2.35	1.08	1-5	37	2.32	1.06	1-5

*Received nursing care provided by an agency nurse
**Received no nursing care

Note: The higher the score, the greater the limitation caused by the symptom

Table 13

SYMPTOMS EXPERIENCED FOLLOWING SURGERY: *DEGREE OF LIMITATION (Version 2)*

	Intervention		Control A*		Control B **		Total Controls A & B	
	n	%	n	%	n	%	n	%
Pain	(n=96)		(n=41)		(n=38)		(n=79)	
Not at all	34	35.4%	12	29.3%	10	26.3%	22	27.8%
Small extent	24	25.0%	5	12.2%	7	18.4%	12	15.2%
Some extent	29	30.2%	17	41.5%	18	47.4%	35	44.3%
Great extent	8	8.3%	4	9.8%	2	5.3%	6	7.6%
Very great extent	1	1.0%	3	7.3%	1	2.6%	4	5.1%
Total Limitations	62	64.6%	29	70.7%	28	73.7%	57	72.2%
Fatigue	(n=91)		(n=45)		(n=38)		(n=83)	
Not at all	31	34.1%	14	31.1%	9	23.7%	23	27.7%
Small extent	20	22.0%	12	26.7%	11	28.9%	23	27.7%
Some extent	24	26.4%	13	28.9%	12	31.6%	25	30.1%
Great extent	14	15.4%	5	11.1%	4	10.5%	9	10.8%
Very great extent	2	2.2%	1	2.2%	2	5.3%	3	3.6%
Total Limitations	60	65.9%	31	68.9%	29	76.3%	60	72.3%
Numbness and Tingling	(n=83)		(n=42)		(n=42)		(n=84)	
Not at all	52	62.7%	21	50.0%	22	52.4%	43	51.2%
Small extent	14	16.9%	8	19.0%	9	21.4%	17	20.2%
Some extent	12	14.5%	9	21.4%	8	19.0%	17	20.2%
Great extent	2	2.4%	2	4.8%	3	7.1%	5	6.0%
Very great extent	3	3.6%	2	4.8%	0	0.0%	2	2.4%
Total Limitations	31	37.3%	21	50.0%	20	47.6%	41	48.8%
Limitation in Surgical Arm Range of Motion	(n=77)		(n=46)		(n=37)		(n=83)	
Not at all	25	32.5%	13	28.3%	8	21.6%	21	25.3%
Small extent	17	22.1%	11	23.9%	16	43.2%	27	32.5%
Some extent	24	31.2%	16	34.8%	7	18.9%	23	27.7%
Great extent	8	10.4%	5	10.9%	5	13.5%	10	12.0%
Very great extent	3	3.9%	1	2.2%	1	2.7%	2	2.4%
Total Limitations	52	67.5%	33	71.7%	29	78.4%	62	74.7%

*Received nursing care provided by an agency nurse

**Received no nursing care

Table 14

SYMPTOMS OF PAIN & FATIGUE EXPERIENCED FOLLOWING SURGERY - *RELATIONSHIP WITH OTHER VARIABLES (n=240)*

	Experienced both Pain and Fatigue (n=142) or (59.2%)			Did NOT Experience both Pain and Fatigue (n=98) or (40.8%)			
Post-Surgery Variable	**M**	**SD**	**Min/Max**	**M**	**SD**	**Min/Max**	**t-value**
Functional Status - Upper Body Limitation	1.81	0.48	1.00-3.00	1.49	0.40	1.00-2.80	5.32**
Quality of Life (QOL) Total	3.00	0.49	1.38-3.79	3.39	0.33	2.35-4.00	7.44**
QOL - Physical Subscale	3.03	0.70	0.67-4.00	3.61	0.39	2.33-4.00	8.20**
QOL - Social/Family Subscale	3.50	0.60	1.00-4.00	3.64	0.46	1.67-4.00	2.05*
QOL - Emotional Subscale	3.03	0.71	0.50-4.00	3.39	0.57	1.00-4.00	4.23**
QOL - Functional Subscale	2.69	0.75	0.14-4.00	3.21	0.61	1.29-4.00	5.79**
State Anxiety	1.93	0.65	1.00-4.00	1.62	0.54	1.00-3.15	3.96**
Other Symptoms Experienced	6.29	2.92	0.00-13.00	3.89	2.71	0.00-13.00	6.45**
Other Health Problems (co-morbid)	2.14	1.81	0.00-9.00	1.60	1.55	0.00-6.00	2.40*

*$p<.05$ (2-tailed)
**$p<.01$ (2-tailed)

Table 15

STATE ANXIETY OVER TIME
(The higher the score, the greater the anxiety)

	Intervention (n=121)			Control A‘ (n=64)			Control B“ (n=55)		
Time	**M**	**SD**	**Min-Max**	**M**	**SD**	**Min-Max**	**M**	**SD**	**Min-Max**
Before surgery	42.34	13.71	20-78	41.12	13.39	19-75	46.13	14.20	20-80
After surgery	34.69*	12.14	20-77	35.53*	12.68	20-63	39.22*	12.64	20-80

*$p<.001$ (within group comparison)
‘Received nursing care provided by an agency nurse
“Received no nursing care

Table 16

STATE ANXIETY - *RELATIONSHIP WITH OTHER SYMPTOMS*

	Mean State Anxiety Score for those who Experienced Symptom				Mean State Anxiety Score for those who did NOT Experience Symptom				
Symptom	**n**	**M**	**SD**	**Min/Max**	**n**	**M**	**SD**	**Min/Max**	**t-value**
Trouble Sleeping	128	1.97	0.62	1.00-4.00	112	1.61	0.57	1.00-3.85	4.71*
Mood Changes	115	2.04	0.64	1.00-4.00	125	1.58	0.52	1.00-3.10	6.08*
Difficulty Concentrating	75	2.07	0.66	1.00-4.00	165	1.68	0.57	1.00-3.85	4.67*
Poor Appetite	48	2.17	0.71	1.00-4.00	192	1.71	0.57	1.00-3.70	4.76*

*$p<.01$ (2-tailed)

Table 17

QUALITY OF LIFE OVER TIME
(The higher the mean, the greater the quality of life)

Intervention (n=121)

	Before Surgery			After Surgery		
Sub-scales	**M**	**SD**	**Min/Max**	**M**	**SD**	**Min/Max**
Physical well-being**	20.80	3.71	1.00-24.00	19.74	3.47	7.00-24.00
Social/family well-being***	19.90	4.63	8.00-24.00	20.85	3.74	6.00-24.00
Relationship with doctors	7.22	1.44	0.00-8.00	7.15	1.32	1.00-8.00
Emotional well-being*	16.22	4.86	3.00-24.00	19.32	3.92	3.00-24.00
Functional well-being	21.17	5.52	0.00-28.00	20.72	4.96	6.00-28.00
Additional concerns**	18.54	3.83	8.00-26.00	19.78	4.03	10.00-28.00

Control A‘ (n=64)

	Before Surgery			After Surgery		
Sub-scales	**M**	**SD**	**Min/Max**	**M**	**SD**	**Min/Max**
Physical well-being**	21.22	2.39	14.00-24.00	19.27	4.69	5.00-24.00
Social/family well-being	20.42	4.37	7.00-24.00	21.12	3.37	10.00-24.00
Relationship with doctors	7.25	1.19	4.00-8.00	7.14	1.17	4.00-8.00
Emotional well-being*	16.20	5.06	4.00-24.00	19.36	4.14	6.00-24.00
Functional well-being	21.08	4.96	10.00-28.00	20.14	5.15	5.00-28.00
Additional concerns***	18.77	3.94	10.00-26.00	19.91	4.32	8.00-28.00

Control B“ (n=55)

	Before Surgery			After Surgery		
Sub-scales	**M**	**SD**	**Min/Max**	**M**	**SD**	**Min/Max**
Physical well-being	20.31	4.27	0.00-24.00	19.24	4.32	4.00-24.00
Social/family well-being	20.18	4.33	8.00-24.00	20.85	3.79	10.00-24.00
Relationship with doctors	7.40	1.23	2.00-8.00	7.27	1.52	1.00-8.00
Emotional well-being*	15.25	4.62	5.00-23.00	17.96	4.25	5.00-24.00
Functional well-being	20.58	6.64	1.00-28.00	19.51	5.68	1.00-28.00
Additional concerns	18.64	4.24	9.00-26.00	19.36	4.81	8.00-28.00

*$p<.001$ (within group comparison)
**$p<.01$ (within group comparison)
***$p<.05$ (within group comparison)

‘Received nursing care provided by an agency nurse
“Received no nursing care

Table 18

USE OF HEALTH SERVICES: *COMPARISONS ACROSS GROUPS*

	Intervention (n=121)			Control A* (n=64)			Control B** (n=55)			Total Controls A & B (n=119)			Study Total (n=240)		
Surgery (Pre-Intervention)	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**
Hospital Stay (hours)	121	21.50	16.13	64	24.56	17.55	55	24.16	13.19	119	24.38	15.53	240	23.13	16.05
Hospital Stay (5 outliers omitted)	117	19.45*	11.44	63	24.08	16.50	55	24.16	13.19	118	24.11	15.14	235	21.59	13.45
	n	**%**		**n**	**%**		**n**	**%**		**n**	**%**		**n**	**%**	
Hospital Stay > 48 hour	7/121	5.8%*		11/64	17.2%		6/55	10.9%		17/119	14.3%		24/240	10.0%	

	Intervention (n=104)				Control A* (n=64)				Control B** (n=55)				Total Controls A & B (n=119)			
Post-Surgery Services/Visits	**n**	**%**	**M**	**SD**	**n**	**%**	**M**	**SD**	**n**	**%**	**M**	**SD**	**n**	**%**	**M**	**SD**
Surgeon Post-op	10	100.0%	2.74	1.99	64	100.0%	2.77	1.68	55	100.0%	2.76	1.84	119	100.0%	2.76	1.75
Laboratory	14	13.5%	1.68	1.23	13	20.3%	1.54	0.88	7	12.7%	1.57	0.98	20	16.8%	1.55	0.89
Primary Care	8	7.7%	1.13	0.35	7	10.9%	1.00	0.00	11	20.4%	1.18	0.40	18	15.3%	1.11	0.32
Emergency Room	3	2.9%	1.00	0.00	4	6.3%	1.00	0.00	6	10.9%	1.33	0.52	10	8.4%	1.20	0.42
Re-hospitalization	9	8.7%	1.89	2.67	6	9.4%	1.00	0.00	6	10.9%	1.00	0.00	12	10.1%	1.00	0.00
Social Worker	4	3.8%	1.00	0.00	1	1.6%	3.00	---	2	3.6%	2.50	0.71	3	2.5%	2.67	0.58
Home Nursing Care	12	100.0%	2.50**	0.90	64	100.0%	6.41	6.63	---	---	---	---	64	53.8%	6.41	6.63

*$p<.05$
**$p<.001$
*Received nursing care provided by an agency nurse
**Received no nursing care

Table 19

USE OF COMPLEMENTARY THERAPIES (CTs)

	Intervention (n=104)		Control A▲ (n=64)		Control B▲▲ (n=55)		Total Controls A&B (n=119)	
	n	%	n	%	n	%	n	%
Used one or more CTs	54	51.9%	43	67.2%	29	52.7%	7	60.5%
Variety of CTs used	13/14	92.9%	11/14	78.6%	13/14	92.9%	13/14	92.9%

	n	M	SD	n	M	SD	n	M	SD	n	M	SD
Average # of CTs per Participant	104	0.88	1.15	64	1.33	1.33	54	1.02	1.31	118	1.19	1.33

Frequency of Therapy Use	n	%	n	%	n	%	n	%
Special Vitamin Therapy*	29	27.9%	30	46.9%	18	33.3%	48	40.7%
Herbal Therapy	13	12.5%	12	18.8%	5	9.3%	17	14.4%
Special Cancer Diet	9	8.7%	3	4.7%	7	13.0%	10	8.5%
Relaxation Audio Tapes	8	7.7%	8	12.5%	9	16.7%	17	14.4%
Guided Imagery	6	5.8%	5	7.8%	3	5.6%	8	6.8%
Therapeutic Massage*	6	5.8%	10	15.6%	2	3.7%	12	10.2%
Spiritual Healing	6	5.8%	8	12.5%	3	5.6%	11	9.3%
Special Cultural Therapies	3	2.9%	0	0.0%	0	0.0%	0	0.0%
Yoga Therapy	3	2.9%	4	6.3%	2	3.7%	6	5.1%
Relaxation Video Tapes	3	2.9%	1	1.6%	2	3.7%	3	2.5%
Music Therapy	3	3.3%	0	0.0%	1	2.3%	1	1.0%
Acupuncture Treatment	1	1.0%	0	0.0%	1	1.9%	1	0.8%
Therapeutic Touch	1	1.0%	2	3.1%	1	1.9%	3	2.5%
Chiropractic Treatment	0	0.0%	2	3.1%	1	1.9%	3	2.5%

*$p<.05$

▲Received nursing care provided by an agency nurse

▲▲Received no nursing care

Table 20

OUT-OF-POCKET EXPENSES FOLLOWING SURGERY

	Intervention (n=104)				Control A* (n=64)				Control B** (n=55)				Total Controls A & B (n=119)			
	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max
Complementary Therapies	54	$26.63	50.39	$0-262	43	$32.37	50.22	$0-255	29	$22.97	45.15	$0-226	72	$28.58	48.14	$0-255
Medications	75	$18.32	29.47	$2-180	47	$16.94	28.33	$1-187	44	$18.68	31.12	$1-192	91	$17.78	29.56	$1-192
Special Supplies	51	$21.49	50.33	$2-360	25	$22.24	38.97	$2-200	25	$25.28	32.83	$3-150	50	$23.76	35.69	$2-200
Additional Costs	25	$121.28	204.31	$3-1000	23	$109.74	113.23	$6-375	12	$246.17	434.58	$10-1550	35	$156.51	271.50	$6-1550
Total Out-of-Pocket	89	$180.70	552.95	$1-5013	56	$109.89	131.49	$4-611	50	$205.26	491.16	$2-2500	106	$154.88	352.03	$2-2500

*Received nursing care provided by an agency nurse
**Received no nursing care

Table 21

NURSING CONTACTS RELATED TO THE INTERVENTION PROTOCOL
(These data pertain only to women in the intervention group: n=121)

Variable (in minutes/contacts)	M	SD	Min-Max
Number of visits per participant	2.50	0.90	1-6
Number of phone contacts per participant	4.65	1.75	1-12
Number of patient problems opened per participant	14.15	1.74	5-25
Home visit direct care time per visit (minutes)	53.76	18.86	15-117
Home visit record-keeping time per participant (minutes)	41.21	17.78	4-90
Telephone direct care time per contact (minutes)	13.48	8.04	0-42
Telephone coordination of care time with other health providers (minutes)	0.59	2.01	0-13
TOTAL INTERVENTION TIME For 2 protocol visits/phone calls, visit charting, & coordination of care (minutes)	299.20 (or 4.99 hours)	89.20	140-705

Table 22

MOST FREQUENTLY OCCURRING PATIENT PROBLEMS
(These data pertain only to women in the intervention group: n=121)

Categories	Protocol Problems
1. Pain	1. Pain, acute
2. Fatigue	2. Activity intolerance
3. Constipation	3. Constipation
4. Anxiety	4. Anxiety
5. Quality of life	5. Alteration in quality of life
6. Incision Care	6. Skin integrity/surgery
	7. Knowledge deficit, milk drain
	8. Knowledge deficit, empty drain
	9. Knowledge deficit, record drainage
	10. Knowledge deficit, dressing change
7. Health Education	11. Knowledge deficit, BSE
	12. Knowledge deficit, ROM affected arm
	13. Knowledge deficit, lymphedema prevention
Categories	**Additional Problems**
1. Incision care	14. Self-care deficit, clogged drainage tube
	15. Self-care deficit, dressing change
	16. Knowledge deficit, seroma signs and symptoms
2. Quality of life	17. Activities of daily living, functional alterations
	18. Emotional alterations
	19. Social/family alterations
	20. Physical, altered
3. Nausea	21. Nausea
4. Depression	22. Depression, side effects
	23. Knowledge deficit, community resources
5. Fatigue	24. Fatigue, acute
6. Fever	25. Fever/hyperthermia

Table 23

CHART AUDIT

	Intervention (n=121)		Control A* (n=64)		Control B** (n=55)		Study Total (n=240)	
	n	%	n	%	n	%	n	%
Cancer Stage								
Stage 1	78	64.5%	40	62.5%	30	54.5%	148	61.7%
Stage 2	33	27.3%	23	35.9%	22	40.0%	78	32.5%
Stage 3	6	5.0%	0	0.0%	1	1.8%	7	2.9%
Stage 4	0	0.0%	0	0.0%	2	3.6%	2	0.8%
Missing	4	3.3%	1	1.6%	0	0.0%	5	2.1%
Post-Op Complications								
Seroma	27	22.3%	16	25.0%	16	29.1%	59	24.6%
Infection	7	5.8%	4	6.3%	5	9.1%	16	6.7%
Problems with Drain	0	0.0%	1	1.6%	2	3.6%	3	1.3%
Missing	1	0.8%	0	0.0%	0	0.0%	1	0.4%
Total with 1 or more complications	34	28.1%	19	29.7%	20	36.4%	73	30.4%
Further Surgery								
Axillary Node Dissection	2	1.7%	0	0.0%	1	1.8%	3	1.3%
Wide Excision	3	2.5%	2	3.1%	1	1.8%	6	2.5%
Lumpectomy	2	1.7%	0	0.0%	0	0.0%	2	0.8%
Mastectomy	7	5.8%	3	4.7%	3	5.5%	13	5.4%
Double Mastectomy	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Prophylactic Mastectomy	0	0.0%	0	0.0%	1	1.8%	1	0.4%
Other	9	7.4%	2	3.1%	4	7.3%	15	6.3%
Missing	1	0.8%	0	0.0%	0	0.0%	1	0.4%
Total with 1 or more surgeries	17	14.0%	7	10.9%	10	18.2%	34	14.2%

	Intervention (n=121)				Control A* (n=64)				Control B** (n=55)				Study Total (n=240)			
	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max	n	M	SD	Min-Max
Total Post-Op Surgeon Visits (Routine and Non-Routine) *up to 4 months after surgery*	120	4.18	2.13	1-12	64	4.38	3.24	1-20	55	4.55	2.67	1-12	239	4.32	2.58	1-20
Routine Post-Op Visits (No Complications) *up to 4 months after surgery*	118	3.42	1.67	1-8	63	3.14	1.45	1-9	55	3.40	1.91	1-10	236	3.34	1.67	1-10
Non-Routine Post-Op Visits (Complications) *up to 4 months after surgery*	34	2.21	2.22	1-10	19	3.79	4.63	1-19	20	2.50	2.04	1-9	73	2.70	3.03	1-19

*Received nursing care provided by an agency nurse
**Received no nursing care

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

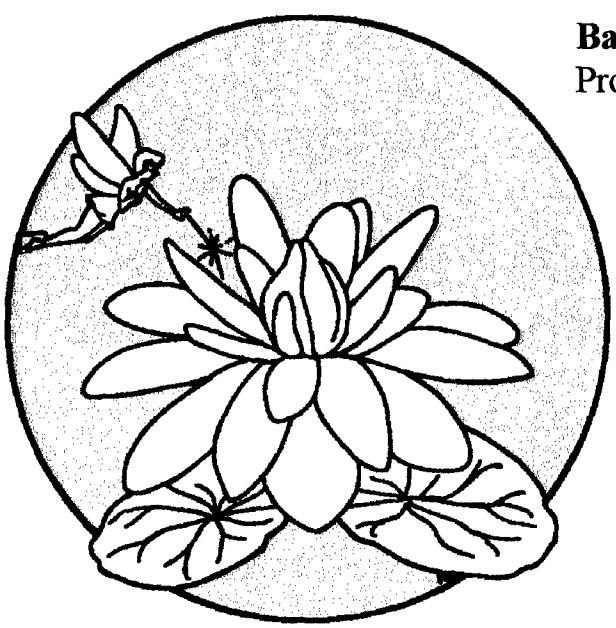
APPENDICES FOR FINAL REPORT
September 15, 1996 to September 14, 2001

Funded by: **U.S. Army Medical Research**
Materiel Command
Department of Defense
Grant # DAMD17-96-1-6325

Principal Investigator:
Gwen Wyatt, RN, PhD
Associate Professor, College of Nursing

Co-principal Investigators:
Charles Given, PhD
Professor, College of Human Medicine

Barbara Given, RN, PhD, FAAN
Professor, College of Nursing



Michigan State University
East Lansing, Michigan 48824

A New Beginning

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

APPENDICES

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

PUBLICATIONS
Appendix A

The following are limited distribution materials:

1. Wyatt, G.K., Friedman, L.L., & Beckrow, K.C. (Submitted 2001). Efficacy of an in-home intervention following short-stay breast cancer surgery. Submitted to the 2001 Oncology Nursing Society Congress, San Diego, CA, for Outstanding Research Paper Award.

2. Wyatt, G.K. & Beckrow, K.C. (2000). A nursing protocol for subacute recovery following breast cancer surgery. Workgroup of European Nurse Researchers Proceedings Book, 431-437.

3. Bloomfield, M. (1999). Post-discharge seroma formation following breast cancer surgery: Implications for the advanced practice nurse. Master's Thesis, Michigan State University, East Lansing, MI.

Running head: EFFICACY OF AN IN-HOME NURSING INTERVENTION

Efficacy of an In-Home Nursing Intervention following Short-Stay Breast Cancer Surgery

Gwen K. Wyatt, R.N., Ph.D.

Michigan State University

Laurie Friedman Donze, Ph.D.

Johns Hopkins University

Kathryn Beckrow, R.N., B.S.N.

Michigan State University

Abstract

Purpose/Objectives: The purpose of this study was to test the efficacy of a targeted nursing protocol that provided sub-acute care in the home (for 2 weeks) designed to help women attain optimal recovery in quality of life, and physical and psychological well being following breast cancer surgery.

Design: Randomized clinical trial.

Setting: 15 midwestern surgical practices.

Sample: 218 women diagnosed with breast cancer and scheduled for short-stay surgery (48 hours or less).

Methods: Paper-and-pencil self-reported data collected pre-surgery, followed by the in-home nursing protocol during the 2 weeks after surgery. A 4-week post-surgery telephone interview was conducted.

Main Research Variables: Surgical recovery and knowledge, functional status, anxiety, quality of life, and health service utilization.

Findings: Women in the **Intervention** group were more likely to receive instruction on surgical self-care ($p \leq .01$), and report greater improvements in social/family quality of life ($p \leq .01$) than those in the **Control** Groups. Women in the **Intervention** group received fewer home visits ($p \leq .001$) than those in the **Control A** group, while experiencing comparable or greater benefits.

Conclusions: A targeted nursing protocol may, at a reasonable cost, improve quality of life and enhance teaching related to exercise and lymphedema, resulting in possible improved outcomes after surgery.

Implications for Nursing Practice: The broader impact of this study potentially includes contributions to policy on length of stay for breast cancer surgery, dose (amount) of post-surgical nursing care needed, and the protocol of care that is most effective for recovery from breast cancer surgery that is timely, cost-effective, and satisfactory to the patient.

Efficacy of a Targeted In-Home Intervention following Short-Stay Breast Cancer Surgery

Over the past decade in the United States, the length of hospital stay following breast cancer surgery has changed dramatically. As recently as the early 1990s, the majority of patients undergoing a mastectomy were hospitalized for 5 to 10 days. Currently, a "long stay" is considered to be anything over 24 hours (Krug, 1997). This evolving change in the standard for hospital stay, coupled with the inherent decrease in nursing care, has created much controversy and debate.

A commonly cited advantage of short-stay surgery involves the minimization of nosocomial infection and allowing patients to return home to their normal routines (Oncology Nursing Society, 1998). In addition, health maintenance organizations (third party insurers) have argued against lengthy hospitalization for breast surgeries such as axillary node dissection, lumpectomy, and mastectomy, stating that physical recovery can occur at home, and that extended hospital stays contribute little to addressing self-image, pain, and disfigurement that patients experience. As a result, surgeons are required to document that an overnight stay is "medically necessary" in order for patients to obtain insurance coverage. Short-stay and outpatient surgery provides an economic savings to health plans, estimated at $1000 to $2000 saved each day that a patient is not hospitalized. It has also been argued that family members can be taught how to care for the surgical site and surgical drain for patients once they return home, and that patients are happier when they are able to be at home and provide their own care (Johannes, 1996).

Representing the other side of this argument, many patients and members of the health care community have voiced concern, asserting that money, rather than clinical judgment, is controlling too much of the health care system in the United States today (Canavan, 1997). These

critics contend that many disadvantages to short-stay surgery exist, including delays in identifying complications, lack of care in the home for patients who live alone, and the risk that post-operative care instructions will not be followed properly. In addition, it has been argued that the cost of re-admitting a surgical outpatient to the hospital because of post-surgical infection could potentially more than triple the cost from what it would have been if the patient had a longer initial recovery in the hospital without complications (Oncology Nursing Society, 1998).

Literature Review

The research to date regarding short-stay surgery for breast cancer is limited, with most studies focusing on feasibility. In a study by Bundred, et al. (1998), a sample of 100 women undergoing mastectomy with axillary dissection or breast conserving surgery, were assessed for the presence of physical and psychological sequela resulting from early discharge (2 days after surgery). Increased rates of complications were not found in this sample, thus leading the researchers to conclude that the short-stay surgery policy can be recommended if patients have sufficient support at home. Research by Bonnema, et al. (1998), also assessed the psychosocial and medical effects of early discharge after surgery in a sample of 125 women with breast cancer, comparing patients discharged 4 days after surgery (with the surgical drain still in place), with patients discharged after the drain was removed ($\bar{x}$ = 9 days post-surgery). They found no difference in duration of drainage or incidence of wound complications between groups, and high satisfaction by those who had the shorter stay. This research team concluded that opportunities for social support within the family seem to be enhanced by early discharge. In a study of 52 women undergoing modified radical mastectomy, simple mastectomy, lumpectomy with axillary dissection, and other breast procedures, Burke, Zabka, McCarver, and Singletary (1997) found that most patients had no problems with drain or incision care and were prepared to

leave the hospital on the first post-operative day. They concluded that short-stay surgery was feasible for post-operative patients who receive appropriate educational support in preparation for their return to the home. Finally, in his study of 133 breast cancer patients, Seltzer (1995) found that limited axillary node dissection and partial mastectomy can be performed safely as a same-day procedure. Advantages are that patients do not have to be hospitalized, the surgeon's in-hospital responsibilities and paperwork are reduced, and third-party insurers have reduced costs. From these studies, we can conclude that short-stay surgery appears to be feasible. The question remains, however, what physical and psychological cost does short-stay surgery put upon the patient and her family to meet the needs no longer addressed by the health system?

Although the majority of the research has focused on length of hospital stay, little has been done to assess or address the needs of women once they return home. Several experts have made the point that women's needs differ, especially as a result of available family and social support (Canavan, 1997; Wyatt & Friedman, 1998). Wang, Cosby, Harris, and Liu (1999) found that the major concerns and needs experienced by breast cancer patients dealt with health, family, self-esteem, work, finances, future, and counseling and support for the family and themselves. Although some women receive agency in-home nursing care to address physical health concerns (such as dressing changes and surgical drain care), many receive no follow-up care to address the numerous other needs, such as protection against the development of lymphedema, anxiety, quality of life problems, and obtaining access to necessary community resources. As a result, these women are left to care for themselves or depend on family members to provide physical and emotional support. Although having family or friends at home may be a great comfort to women, there are still several factors that each individual faces after surgery, but which may be outside the realm of family or friendship support. Such factors include:

psychosocial issues related to the change in body image and anxiety about follow-up adjuvant therapy; physical issues related to post-surgical self-care (e.g., dressing changes and drain care) and prevention of complications (such as lymphedema or diminished surgical arm range-of-motion); and cost-related issues involving use of health services, purchase of supplies, and other costs not covered by insurance but essential to post-surgical recovery. Therefore, based on these issues, a nursing intervention was developed and piloted to address the following research question: "Can a focused nursing intervention that targets the needs of women following short-stay breast cancer surgery improve outcomes such as anxiety, quality of life, and physical functioning, in a cost-effective manner, and ultimately, empower women to be able to care for themselves?" The nursing intervention was based on the holistic framework for quality of life developed by Wyatt and Friedman (1996).

Purpose

The purpose of this paper is to report on the impact of a short-term (14 days post-surgical), sub-acute care intervention for women who had undergone short-stay surgery (48-hours or less) for breast cancer. This study tested the hypothesis that, when compared to women who are undergoing breast cancer surgery and receive conventional post-surgical care, recipients of our sub-acute care intervention would report: (a) Improved surgical recovery and self-care knowledge, (b) higher functional status (ADLs), (c) lower anxiety levels, (d) higher quality of life, and (e) less frequent use of health services.

Methods

Sample

All participants (n=218) were women age 21 and older, able to speak and write the English language, with a positive diagnosis of breast cancer, and undergoing short-stay surgery

(48 hours or less). The surgery types included were mastectomy with axillary lymph node dissection, mastectomy without axillary node dissection, or lumpectomy with axillary node dissection. Exclusionary criteria included pregnancy, in-situ tumors, immediate reconstructive surgery, pre-surgical chemotherapy, or an acute episode of medically diagnosed mental illness at the time of cancer diagnosis. The majority of women were Caucasian (92.2%), married (60.1%), had at least some college education (67.0%), and were employed prior to surgery (61.0%). The mean age of the sample was 56 years. The average annual household income was $54,868. The majority of women (75.7%) had a lumpectomy with axillary node dissection (see Table 1).

The control group was divided into two subgroups (**Control A** and **Control B**), as some surgeons order an agency home-care nurse when women are assigned to the study control group. **Control A** participants received conventional post-operative medical care and surgeon-ordered home-care provided by an agency nurse. **Control B** participants received only conventional post-operative medical care following surgery, without any home nursing care.

Procedures

Participants were recruited from 15 surgical practices in four midwestern communities. The nurse recruiters reviewed the surgical log and identified women scheduled for breast cancer surgery who met the study's criteria. The nurse then contacted the women prior to their surgery, informed them about the study, requested their participation, and asked them to sign the consent form. Once recruited and baseline data were collected, women were randomly assigned to the **Intervention** or **Control** groups. Signed consents were stored in a locked file at the central research office. All procedures were approved by the participating institutional review boards.

Data-collection points. Data were collected on all participants twice over the course of the study (at recruitment and 4 weeks post-surgery). These data were collected via a combination

of self-administered written questionnaires and telephone interviews with the women. The rationale for this schedule was to obtain baseline data and to compare these data with data collected after the intervention, to allow for the assessment of the immediate efficacy of the intervention.

Intervention. **Intervention** participants received the targeted nursing care protocol in their homes during the first 14 post-operative days, whereas the **Control A** participants received surgeon-ordered agency home nursing care, and the **Control B** participants received no post-surgical home nursing care.

The intervention protocol consisted of a minimum of two home visits and two phone calls by a registered nurse during the 2 weeks immediately following surgery. In addition, each patient had 24 hour access to her nurse by pager, in the event that complications developed. The nurse/patient interactions were designed to facilitate self-care and empowerment, with an effort to minimize dependence upon the nurse. Thus, all patients and available family members were taught not only how to care for themselves physically, but how to best be in tune with their emotional health, in an attempt to have the fullest recovery possible (see Wyatt & Beckrow, 2000, for a detailed description of the protocol).

Incentives

An incentive payment was offered to each **Control** participant to demonstrate the value of her time in responding to the questionnaires and interviews. After the telephone interview was completed, incentive checks for $10 were mailed to each **A** and **B** group **Control** participant.

Instruments

In addition to the items assessing demographic information, several measures were designed especially for this study and were part of the telephone interview conducted 4 weeks after surgery. Other instruments were standardized tools measuring functional status, anxiety, quality of life, and health service utilization.

Surgical recovery and self-care knowledge. The items assessing surgical recovery and self-care knowledge were developed for this study and used as part of the 4-week post-surgical interview. They were "yes/no" questions that obtained self-reported information on four areas: (a) infection status and antibiotic use; (b) surgical arm range-of-motion; (c) breast self-exam technique; and (d) lymphedema prevention knowledge.

Functional status. Functional status was measured by an adapted version of the instrument from the Rand Health Insurance Experiment and Medical Outcomes Research (Ware et al., 1980). This 23-item instrument measured three dimensions of functioning: (a) physical activities; (b) balance and dexterity; and (c) upper body self-care activities. The original measure of functional status has been tested for validity and reliability with reported alpha coefficients exceeding .90 (Jette et al., 1986; Stewart, Ware, & Barook, 1981; Ware & Sherbourne, 1992). Respondents were asked via telephone interview to consider their functional status at two different time intervals (i.e., prior to surgery, and then at the present time [four weeks after surgery]). Reliabilities (alpha coefficients) of the adapted instrument for this study ranged from .84 to .85, on pre- and post-test measures, respectively.

Anxiety. Anxiety was measured by the Spielberger (1983) State-Trait Anxiety Inventory, a self-report instrument. The State Anxiety scale consists of 20 statements that assess how respondents feel "right now, at this moment." The essential qualities evaluated are feelings of

apprehension, tension, nervousness, and worry. The alpha coefficient for a sample of working women was .93 (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Spielberger et al. (1983) also reported evidence of concurrent, convergent, divergent, and construct validity. The pre- and post-test alphas for the current sample were .95 and 96, respectively.

Quality of life. Quality of life was measured with the Functional Assessment of Cancer Therapy-Breast (FACT-B) scale. Subscales measure (a) physical well being, (b) social/family well being, (c) relationship with doctor, (d) emotional well being, and (e) additional concerns. Items are rated on a 5-point scale, in which 0 indicates "not at all," and 4 is "very much." Respondents are asked to consider the previous 7 days when completing the measure. Test-retest reliability correlations ranged from .82 to .92 in a sample of 70 outpatients with various cancer diagnoses (Cella & Bonomi, 1994). The pre- and post-test alphas for this sample were .89 and .92, respectively.

Health service utilization. Given and Given (1993) developed the conventional Health Service Utilization instrument. This instrument assessed the participants' use of five health services and included questions such as, "Have you used the emergency room since your surgery?" All items required a "yes" or "no" response and were scored as 1 and 0, respectively. The sample alpha was .29 with a group of older cancer patients (Wyatt, Friedman, Given, Given, & Beckrow, 1999).

Protocol data. These data were collected during the 4-week telephone interview and included information such as the number of home visits.

Results

This report provides data on the 218 women who have completed the study, with 104 participants in the **Intervention** group, 63 in the **Control A** group, and 51 in the **Control B**

group. All data were analyzed together rather than by community due to the lack of significant baseline differences between sites. Because this study is still in progress, the results are preliminary. The total expected sample size is 250, once all data are collected.

Between-Group Differences

Between-group differences on categorical variables were assessed using chi-square analyses for contingency tables, whereas group differences for continuous variables were assessed using one-way analysis of variance (ANOVA). There were no significant pre-surgical differences between the three groups on any of the demographic or baseline variables.

Surgical recovery and self-care knowledge. Among **Intervention** participants, a significantly greater proportion (91.3%) reported receiving education on range-of-motion exercises (χ^2 [2, N = 217] = 18.87, $p \leq .001$), when compared to **Control A** (74.6%) and **Control B** (62.7%) participants. Further, among those who reported receiving education on range-of-motion, **Intervention** participants received a significantly greater number of teaching sessions (F[2, 173] = 3.38, $p \leq .05$), when compared to **Control A** and **B** participants (see Table 2).

Among the **Intervention** participants, a significantly greater proportion (91.8%) reported receiving education on lymphedema prevention (χ^2 [2, N = 205] = 34.03, $p \leq .001$), than **Control A** (67.2%) or **Control B** (49.0%). Further, among those who reported receiving education, across the three groups, **Intervention** participants received the greatest number of teaching sessions (F[2, 152] = 4.00, $p \leq .05$) (see Table 3). However, there were no significant differences between the groups in antibiotic use or breast self-exam knowledge.

Health service utilization. The majority of the total sample (89.4%) were discharged within the anticipated 48 hours or less after surgery. A significantly higher percentage (14.9%) of **Control** participants (**A & B combined**) exceeded the 48-hour stay after surgery, when

compared to the **Intervention** participants (5.8%) ($F[2, 217] = 5.786$, $p \leq .05$). When assessing all women who stayed 48 hours or less, the **Intervention** group stayed a significantly shorter number of hours ($F[1, 212] = 4.94$, $p \leq .05$) than the controls. All participants were asked about six health services they had utilized since surgery. There were no significant differences in reported utilization of health services.

Other variables. No significant differences were found between the three groups on functional status, state anxiety, or total quality of life.

Changes over Time (Within-Group Effects)

Functional status, state anxiety, and quality of life were measured for all participants before and 4 weeks after surgery.

Functional status (ADLs). All three groups reported greater functional limitation 4 weeks post-surgery ($t^I[102] = 9.25$, $p \leq .001$; $t^A[62] = 6.18$, $p \leq .001$; $t^B[49] = 6.73$, $p \leq .001$). There were no significant differences between the three groups in severity of functional limitations post-surgery.

Anxiety. There was a significant decrease in anxiety among the **Intervention** and **Control** (**A** and **B**) group participants from before to 4 weeks after surgery ($t^I[103] = 6.40$, $p \leq .001$; $t^A[62] = 4.28$, $p \leq .001$; and $t^B[50] = 3.55$, $p \leq .001$) (see Table 4).

Quality of life. Regarding quality of life, all three groups reported significant improvements from pre-surgery to 4 weeks after surgery in emotional well being ($t^I[103] = 7.43$, $p \leq .001$; $t^A[62] = 6.321$, $p \leq .001$; and $t^B[50] = 4.500$, $p \leq .001$) and additional concerns ($t^I[102] = 3.353$, $p \leq .001$; $t^A[62] = 2.373$, $p \leq .001$; and $t^B[50] = 2.027$, $p \leq .05$). In addition, the **Intervention** group also reported a significant improvement from pre- to post-surgery in social/family well being ($t^I[102] = 2.733$, $p \leq .01$), that the **Control** groups did not demonstrate. Although all three groups

reported a decline in physical quality of life, only the **Control A** participants demonstrated a significant decrease in physical well being ($t^A[61] = 3.863$, $p \leq .001$) from pre- to post-surgery (see Table 5).

Intervention Protocol Results

The study nurses made an average of 2.65 home visits per **Intervention** participant, which was significantly fewer than the **Control A** participants, who reported an average of 6.44 home visits from agency nurses ($F[1, 165] = 32.83$, $p \leq .001$).

Discussion and Implications

The results of this study suggest that, as hypothesized, a targeted, in-home nursing intervention may improve outcomes following breast cancer surgery. Women in the **Intervention** group were significantly more likely to receive instruction on range-of-motion exercises and lymphedema prevention, than those in the **Control** groups. Enhanced instruction in these (and other) areas should improve women's self-care knowledge and ultimately recovery after surgery.

It seems that the nursing intervention may also positively enhance quality of life. Although all three groups reported improvement in emotional well being and additional quality of life concerns, only the **Intervention** group reported a significant improvement in social/family well being after surgery. This may be due to the fact that the **Intervention** nurses specifically focused on the various dimensions of our quality of life conceptual framework (Wyatt et al., 1996), which includes social and family issues. Perhaps being in the home and involving the family members in care and discussion also had an impact on this area of well being.

These findings also suggest that a specific nursing intervention protocol may be more time- and cost-effective than standard fee-for-service home nursing care. This may be partially

accounted for by the fact that the protocol encouraged independence and self-care competency for women in the **Intervention** arm of the study. Further, women who received the in-home nursing intervention received less than half the number of nursing visits as compared to controls, yet achieved comparable or better physical, emotional, and educational outcomes.

The area in which all women reported limitation at 4 weeks after surgery is in functional status. They remain limited in functional activities of daily living (ADLs) and all reported a lower physical quality of life. Future research must address the physical functioning and mobility needs that continue beyond 4 weeks after surgery. With some adjustments, the protocol could be enhanced to support women for a longer period of time after surgery. Physical functioning could be central to the extended protocol, with special emphasis on upper body range-of-motion. This lengthened protocol could then assess its impact on long-term quality of life, in addition to the sub-acute quality of life assessed by this study.

Limitations

Finally, several limitations in research methodology must be acknowledged. All of the outcome data were obtained from self-reported measures that may be influenced by demand characteristics (e.g., responding to "please" the investigator) or social desirability pressures. There is also a lack of validity and reliability testing on the interview measures that were specifically developed for this study. In addition, longer-term follow-up, beyond 4 weeks post-surgery, would likely be important to better understand the efficacy of the intervention and identify the longer-term effects of short-stay surgery.

Conclusions

As previous research has shown, short-stay surgery for women with breast cancer seems to be a feasible option (Bonnema et al., 1998; Bundred et al., 1998; Burke et al., 1997; Seltzer,

1995). The drawback is that the physical and psychological needs of these women are not necessarily being met in the home, as needs vary widely from person to person (Canavan, 1997; Wang et al., 1999; Wyatt et al., 1998). Through a nursing-based intervention as described in this report, women can be assured of receiving appropriate educational information that Burke et al. (1997) proposed as an essential component of feasible short-stay surgery. In addition, women can receive the support in the home that research by Bundred et al. (1998) found to be an essential component to successful recovery for breast cancer patients.

This protocol represents a very different philosophy than typical agency nursing care. It empowers women to provide self-care for physical and psychological needs, rather than encouraging dependency upon the nurse, who is reimbursed per patient visit. It is done in a cost-effective manner by providing a minimum of two visits and two phone calls and giving patients access to a nurse through the use of a pager in the event that complications develop. It teaches women how to care for their dressing and drain, what to be aware of as possible signs of infection, how to manage symptoms, and how to be active participants in their care. The intervention also addresses anxiety and quality of life issues, teaches coping skills, instructs on the importance of and appropriate techniques for breast self-exam, range-of-motion exercises, and lymphedema awareness, as well as providing community resources that women can access once care is complete. This is in contrast to traditional agency nursing care, where physical care is the focus, without the emphasis on holistic quality of life teaching and management.

In summary, we believe that this research could translate into policy for discharge planning in terms of length of hospital stay, standard of care for sub-acute post-surgical needs, and the optimal amount and type of nursing care necessary to achieve favorable outcomes and meet the needs of women following surgical treatment for breast cancer.

References

Bonnema, J., van Wersch, A. M., van Geel, A. N., Pruyn, J. F., Schmitz, P. I., Paul, M.A., & Wiggers, T. (1998). Medical and psychosocial effects of early discharge after surgery for breast cancer: Randomized trial. British Medical Journal, 316(7140), 1267-1271.

Bundred, N., Maguire, P., Reynolds, J., Grimshaw, J., Morris, J., Thomson, L., Bar, L., & Baildam, A. (1998). Randomized controlled trial effects of early discharge after surgery for breast cancer. British Medical Journal, 317(7168), 1275-1279.

Burke, C. C., Zabka, C. L., McCarver, K. J., & Singletary, S. E. (1997). Patient satisfaction with 23-hour "short-stay" observation following breast cancer surgery. Oncology Nursing Forum, 24(4), 645-651.

Canavan, K. (1997). Nurses fight "drive-through mastectomy" trend. The American Nurse, 29(1), 3,8.

Cella, D. F., & Bonomi, A. E. (1994). Manual functional assessment of cancer therapy (FACT) scales and the functional assessment of HIV infection (FAHI) scale. Version 3. Chicago: Rush Cancer Institute.

Given, B., & Given, C. W. (1993). Conventional health service use. Unpublished instrument.

Jette, A. M., Davies, A. R., Cleary, P. D., Calkins, D. R., Rubenstein, L.V., Fink, A., Kosecoff, J., Young, R. T., Brook, R. H., & Delbanco, T. L. (1986). The functional status questionnaire: Reliability and validity when used in primary care. Journal of General Internal Medicine, 1,143-149.

Johannes, L. (1996, Nov. 10). More HMOs order outpatient mastectomies. Wall Street Journal, B1, B8.

Krug, P. (1997). Breast cancer legislation active in several states. AORN Journal, 66(2), 330-333.

Oncology Nursing Society (1998). Advantages and disadvantages of outpatient surgery. Oncology Nursing Society's 1998 Annual Congress Symposia Highlights, 31.

Seltzer, M. H. (1995). Partial mastectomy and limited axillary dissection performed as a same day surgical procedure in the treatment of breast cancer. International Surgery, 80(1), 79-81.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press, Inc.

Stewart, A. L., Ware, J. E., & Barook, R. H. (1981). Advances in the measurement of functional status: Construction of aggregate indexes. Medical Care, 19, 473-488.

Wang, X., Cosby, L. G., Harris, M. G., & Liu, T. (1999). Major concerns and needs of breast cancer patients. Cancer Nursing, 22(2), 157-163.

Ware, J., Brook, R., Davies-Avery, A., Williams, K., Stewart, A., Rogers, R., Donald, C. & Johnston, S. (1980). Conceptutilization and measurement of health for adults in the Health Insurance Study: Vol 1. model of health and methodology (Publication No. R-1987/1-HEW). Santa Monica, CA: RAND Corporation.

Ware, J. E., & Sherbourne, C. D. (1992). A 36-item short form health survey (S-36). Medical Care, 30, 473-483.

Wyatt, G. K., & Friedman, L. L. (1996). Development and testing of a quality of life model for long-term female cancer survivors. Quality of Life Research, 5, 387-394.

Wyatt, G. K., & Friedman, L. L. (1998). Physical and psychological outcomes of midlife and older women following surgery and adjuvant therapy for breast cancer. Oncology Nursing Forum, 25(4), 761-768.

Wyatt, G. K., Friedman, L.L., Given, C. W., Given, B. A., & Beckrow, K. C. (1999). Complementary therapy use among older cancer patients. Cancer Practice, 7(3), 136-144.

Wyatt, G. K., & Beckrow, K. C. (2000). A nursing protocol for sub-acute recovery following breast cancer surgery. Proceedings of the 10th Biennial Conference of European Nurse Researchers, Reykjavik, Iceland, 10, 42-45.

Author Note

Gwen Wyatt, R.N., Ph.D., College of Nursing, Michigan State University; Laurie Friedman Donze, Ph.D., School of Medicine, Johns Hopkins University; Kathryn Beckrow, R.N., B.S.N., College of Nursing, Michigan State University.

This research was funded by the United States Medical Research and Materiel Command, Department of Defense, DAMD17-96-6325. A special thanks to colleagues who were co-investigators in the conduct of this study: Barbara Given, R.N., Ph.D., F.A.A.N., and Charles Given, Ph.D.

Correspondence concerning this article should be addressed to Gwen K. Wyatt, College of Nursing, Michigan State University, A230 Life Science Building, East Lansing, Michigan, 48823. Electronic mail may be sent via Internet to gwyatt@msu.edu.

Table 1

DEMOGRAPHICS

	Study Total (n=218)	
	n	%
Ethnicity		
Caucasian	201	92.2%
Other	17	7.8%
Marital Status		
Married	131	60.1%
Divorced/Separated	40	18.3%
Widowed	29	13.3%
Never married	18	8.3%
Employment Status		
Not employed before surgery	85	39.0%
Employed before surgery	133	61.0%
--Returned to work after surgery	72	54.1%
--Did not return to work after surgery	61	45.9%
Education		
Completed graduate degree	39	17.9%
Completed college	26	11.9%
Completed some college	81	37.2%
Completed high school	55	25.2%
Completed some high school	13	6.0%
Completed grade school	4	1.8%
Type of Surgery		
Lumpectomy with node removal	165	75.7%
Mastectomy with node removal	44	20.2%
Simple Mastectomy	9	4.1%

	Study Total			
	n	M	SD	Min-Max
Income ($)	163	54,868	36,730	2,952-210,000
Age (years)	218	56.32	11.60	23-86

Table 2

SURGICAL RECOVERY AND SELF-CARE KNOWLEDGE: *RANGE-OF-MOTION (ROM) EXERCISES*

	Intervention (n=104)		Control A (n=63)		Control B (n=51)		Total Controls A & B (n=114)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Received teaching for ROM exercises	95	91.3%*	47	74.6%	32	62.7%	79	69.3%

	Intervention (n=104)			Control A (n=63)			Control B (n=51)			Total Controls A & B (n=114)		
	n	M	SD	n	M	SD	n	M	SD	n	M	SD
Number of times ROM taught**	95	1.76	0.80	47	1.51	0.88	32	1.38	0.66	79	1.46	0.80

*p .001
**p .05
Received nursing care provided by an agency nurse
Received no nursing care

Table 3

SURGICAL RECOVERY AND SELF-CARE KNOWLEDGE: *LYMPHEDEMA PREVENTION*

(These data pertain only to women who had axillary lymph node dissection)

	Intervention (n=104)		Control A (n=63)		Control B (n=51)		Total Controls A & B (n=114)	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Received teaching for lymphedema prevention	90	91.8%*	39	67.2%	24	49.0%	63	58.9%

	Intervention (n=104)			Control A (n=63)			Control B (n=51)			Total Controls A & B (n=114)		
	n	M	SD	n	M	SD	n	M	SD	n	M	SD
Number of times taught**	90	2.08	1.23	39	1.82	1.00	24	1.38	0.65	63	1.65	0.90

*p .001

**p .05

Received nursing care provided by an agency nurse

Received no nursing care

Table 4

STATE ANXIETY OVER TIME
(The higher the score, the greater the anxiety)

	Intervention (n=88)			Control A (n=49)			Control B (n=39)		
Time	M	SD	Min-Max	M	SD	Min-Max	M	SD	Min-Max
Before surgery	42.45	13.87	20-78	40.97	13.45	19-75	45.57	14.22	20-80
After surgery	34.91*	12.40	20-77	35.54*	12.78	20-63	39.14*	13.02	20-80

*p .001 (within-group comparison)
Received nursing care provided by an agency nurse
Received no nursing care

Table 5

QUALITY OF LIFE OVER TIME

(The higher the mean, the greater the quality of life)

Intervention (n=104)						
	Before Surgery			After Surgery		
Sub-scales	M	SD	Min/Max	M	SD	Min/Max
Physical well-being	20.58	3.86	1-24	19.86	3.50	7-24
Social/family well-being	19.65	4.78	8-24	20.81**	3.83	6-24
Relationship with doctors	7.25	1.40	0-8	7.25	1.15	1-8
Emotional well-being	16.23	4.99	3-24	19.29*	4.08	3-24
Functional well-being	21.00	5.82	0-28	20.74	5.02	6-28
Additional concerns	18.43	3.89	8-26	19.76*	4.09	10-28
Control A (n=63)						
	Before Surgery			**After Surgery**		
Sub-scales	**M**	**SD**	**Min/Max**	**M**	**SD**	**Min/Max**
Physical well-being	21.31	2.32	14-24	19.18*	4.72	5-24
Social/family well-being	20.37	4.39	7-24	21.10	3.39	10-24
Relationship with doctors	7.24	1.20	4-8	7.18	1.15	4-8
Emotional well-being	16.24	5.10	4-24	19.35*	4.17	6-24
Functional well-being	20.97	4.92	10-28	20.05	5.13	5-28
Additional concerns	18.68	3.91	10-26	19.83***	4.30	8-28
Control B (n=51)						
	Before Surgery			**After Surgery**		
Sub-scales	M	SD	Min/Max	M	SD	Min/Max
Physical well-being	20.45	4.31	0-24	19.49	3.98	4-24
Social/family well-being	20.16	4.38	8-24	20.75	3.85	10-24
Relationship with doctors	7.55	0.94	4-8	7.47	1.24	2-8
Emotional well-being	15.45	4.65	5-23	17.90*	4.36	5-24
Functional well-being	20.69	6.65	1-28	19.80	5.68	1-28
Additional concerns	18.67	4.23	9-26	19.55***	4.80	8-28

*p .001 (within group comparison)
**p .01 (within group comparison)
***p .05 (within group comparison)

Received nursing care provided by an agency nurse
Received no nursing care

Proceedings

Challenges for Nurses in the 21st Century: Health Promotion, Prevention and Intervention

10th Biennial Conference
May 25-27 2000, Reykjavík, Iceland

A NURSING PROTOCOL FOR SUBACUTE RECOVERY FOLLOWING BREAST CANCER SURGERY

Gwen Wyatt, RN, PhD and Kathryn Christensen Beckrow, RN, BSN

INTRODUCTION

Over the past decade in the United States of America (USA), the length of hospital stay following breast cancer surgery has changed dramatically. Since the USA does not have socialized medicine, each insurance company is able to set its own standard of care. As recently as the early 1990s, the majority of patients undergoing a mastectomy were hospitalized for a minimum of five to ten days. Currently, a long stay is considered to be anything over 24 hours.[1] This evolving change in the standard for hospital stay, coupled with the inherent decrease in nursing care, has created much controversy and debate.

A commonly cited advantage of short-stay surgery involves the minimization of nosocomial infection and allowing patients to return home to their normal routines.[2] In addition, health maintenance organizations (third party insurers) have argued against lengthy hospitalization for breast surgeries such as axillary node dissection, lumpectomy, and mastectomy, stating that physical recovery can occur at home, and that extended stays contribute little to addressing self-image, pain, and disfigurement that patients experience. As a result, surgeons in the USA are required to document that an overnight stay is "medically necessary" in order for patients to obtain insurance coverage. Short-stay and out-patient surgery provides a great deal of economic savings to health plans, estimated at $1000 to $2000 saved each day that a patient is not hospitalized.[3] It has also been argued that family members can be taught how to care for the surgical site and surgical drain for patients once they return home, and that patients are happier and feel more empowered when they are able to be at home and provide their own care.[3]

Representing the other side of this argument, many patients and members of the health care community have voiced concern, asserting that money, rather than clinical knowledge, is controlling too much of the health care system in the USA today.[4] They contend that many disadvantages to short-stay surgery exist, including delays in identifying complications, lack of care in the home for patients who live alone, and the risk that post-operative care instructions will not be followed properly. In addition, it has been argued that the cost of re-admitting a surgical outpatient to the hospital because of post-surgical infection could potentially more than triple the cost from what it would have been if the patient had a longer initial recovery in the hospital without complications.[2]

LITERATURE REVIEW

The research to date regarding short-stay surgery for breast cancer is limited, with most studies focusing on feasibility. In a study by Bundred, et al.,[5] a sample of 100 women undergoing mastectomy with axillary dissection or breast conserving surgery, were assessed for the presence of physical and psychological sequelae resulting from early discharge (2 days after surgery). Increased rates of complications were not found in this sample, thus leading the researchers to conclude that the short-stay surgery policy can be recommended if patients have sufficient support at home. Research by Bonnema, et al.,[6] also assessed the psychosocial and medical effects of early discharge after surgery with a sample of 125 women with breast cancer, comparing patients discharged 4 days after surgery (with the surgical drain still in place), with patients discharged after the drain was removed (_=9 days). They found no difference in duration of drainage or incidence of wound complications between groups, and high satisfaction by those who had the shorter stay. This team concluded that opportunities for social support within the family seem to be enhanced by early discharge. In a study of 52 women undergoing modified radical mastectomy, simple mastectomy, lumpectomy with axillary dissection, and other breast procedures, Burke, et al.,[7] found that most patients had no problems with drain or incision care, and were prepared to leave the hospital on the first post-operative day. They concluded that short-stay surgery was feasible for post-operative patients who receive appropriate educational support in preparation for their return to the home. Finally, a study by Seltzer[8] of 133 breast cancer patients, found that limited axillary node dissection and partial mastectomy can be performed safely as a same-day procedure. Advantages are that patients do not have to be hospitalized, the surgeon's in-hospital responsibilities and paperwork are reduced, and third-party insurers have reduced costs. From these studies, we can conclude that short-stay surgery appears to feasible. The question is, however, what physical and psychological cost does this put upon the patient and her family to meet the needs no longer addressed by the health system?

While the majority of the research has focused on length of hospital stay, little has been done to address the needs of women once they return home. Several experts have made the point that women's needs differ, especially in the area of available family and social support.[4,9] Research by Wang, et al.,[10] found that the major concerns and needs experienced by breast cancer patients deal with health, family, self-esteem, work, finances, future, counseling and support for the family and themselves. While some women receive agency in-home nursing care to address physical health concerns (such as dressing changes, and surgical drain care), many receive no follow-up care to address the many other needs such as protection against the development of lymphedema, anxiety, quality of life issues, and obtaining access to necessary community resources. As a result, they are left to care for themselves or depend on family members to provide physical and emotional support. Although having family or friends at home may be a great comfort to women, there are still several factors that each individual faces after surgery, but which may be outside the realm of family or friendship support. Such factors include psychosocial issues related to the change in body image and anxiety about follow-up adjuvant therapy, physical issues related to post-surgical self-care (e.g., dressing changes and drain care) and prevention of complications (such as lymphedema

or diminished surgical a
health services, purchas
essential to post-surgica
intervention was develo
"Can a focused nursing
stay breast cancer surge
physical healing in a co
to care for themselves?"
protocol that was develc

A randomized clinical t
Command, Department
care protocol. The sam
less) surgery for breast c
intake, in accordance w
place. All participants w
USA.

Sample
Participants were wome
language, with a positiv
(48 hours or less). The
node dissection, mastec
axillary node dissection
dissection). Exclusiona
reconstructive surgery,
diagnosed mental illnes
majority of women wer
were employed prior to
annual household incon

I

Intervention participar
during the first 14 post-
surgeon-ordered agency
post-surgical home nurs

The intervention protoc
a registered nurse durin
patient had 24 hour acc

or diminished surgical arm range-of-motion), and cost-related issues involving use of health services, purchase of supplies, and other costs not covered by insurance but essential to post-surgical recovery. Therefore, based on these issues, a nursing intervention was developed for testing which addressed the following research question: "Can a focused nursing intervention which targets the needs of women following short-stay breast cancer surgery, improve outcomes such as anxiety, quality of life, and physical healing in a cost effective manner, and ultimately, empower women to be able to care for themselves?" The purpose of this paper is to describe the nursing care protocol that was developed in response to this research question.

DESIGN

A randomized clinical trial, funded by the United States Medical Research and Materiel Command, Department of Defense (DAMD17-96-1-6325), tested the targeted nursing care protocol. The sample included 176 women undergoing short-stay (48 hours or less) surgery for breast cancer. Informed consent was obtained from each participant at intake, in accordance with the institutional review boards where recruitment takes place. All participants were recruited from surgeon offices in the state of Michigan, USA.

Sample

Participants were women age 21 and older, able to speak and write the English language, with a positive diagnosis of breast cancer, and undergoing short-stay surgery (48 hours or less). The surgery types included were mastectomy with axillary lymph node dissection, mastectomy without axillary node dissection, or lumpectomy with axillary node dissection (the majority of women underwent lumpectomy with axillary dissection). Exclusionary criteria included pregnancy, in-situ tumors, immediate reconstructive surgery, pre-surgical chemotherapy or an acute episode of medically diagnosed mental illness at the time of cancer diagnosis. Of the 176 participants, the majority of women were Caucasian, married, had at least some college education, and were employed prior to surgery. The mean age of the sample was 56 years, while the annual household income was $53,504.

DESCRIPTION OF THE PROTOCOL

Intervention participants received the targeted nursing care protocol in their homes during the first 14 post-operative days, while the **control A** participants received surgeon-ordered agency home nursing care, and the **control B** participants received no post-surgical home nursing care. This report will focus on the intervention protocol.

The intervention protocol consisted of a minimum of 2 home visits and 2 phone calls by a registered nurse during the 2 weeks immediately following surgery. In addition, each patient had 24 hour access to her nurse by pager, in the event that complications

developed. The nurse/patient interactions were designed to facilitate self-care and empowerment, with an effort to minimize dependence upon the nurse. Thus, all patients were taught not only how to care for themselves physically, but how to best be in tune with their emotional health, in an attempt to have the fullest recovery possible (See Table 1 for description of the protocol).

DISCUSSION

As previous research has shown, short-stay surgery for women with breast cancer seems to be a feasible option.[5-8] The drawback is that physical and psychological concerns of these women are not necessarily being met in the home, since needs vary widely from person to person.[4,9-10] Through a nursing-based intervention as described in this report, women can be assured of receiving appropriate educational information as deemed essential by Burke, et al.[7] In addition, women can receive the support in the home which Bundred, et al.[5] reported as a critical element to recovery for breast cancer patients.

This protocol represents a very different philosophy than typical agency nursing care. It empowers women to provide self-care for physical and psychological needs; rather than encouraging dependency upon the nurse who is reimbursed per patient visit. It is done in a cost-effective manner by providing a minimum of 2 visits and 2 phone calls and giving patients access to a nurse through the use of a pager in the event that complications develop. It teaches women how to care for their dressing and drain, what to be aware of as possible signs of infection, how to manage symptoms, and how to be active participants in their care. The intervention also addresses anxiety and quality of life issues, teaches coping skills, instructs on the importance of and appropriate techniques for breast self exam, range of motion exercises, and lymphedema awareness, as well as providing community resources which women can access independently.

Preliminary results of this protocol demonstrate that women who receive the in-home nursing intervention are being discharged from the hospital sooner, using fewer health services post-discharge, and receiving less than half the number of nursing visits as compared to controls, yet are achieving comparable or better physical, emotional, and educational outcomes. Based on these findings, we believe that this work could translate into national policy in the USA for discharge planning in terms of length of hospital stay, standard of care for subacute post-surgical needs, and the optimal amount and type of nursing care necessary to achieve favorable outcomes and meet the needs of women following surgical treatment for breast cancer.

1. Krug, P. (1997). Journal, 66(2), 3
2. Advantages and Society's 1998 .
3. Johannes, L. (19 Wall Street Jour
4. Canavan, K. (19 American Nurse
5. Bundred, N., M: Bar, L., & Baild discharge after s 1275-1279.
6. Bonnema, J., va: Paul, M.A., & W discharge after s Journal, 316, 71-
7. Burke, C.C., Zai satisfaction with surgery. Oncolc
8. Seltzer, M.H. (1 performed as a s International Su
9. Wyatt, G.K. & F midlife and olde cancer. Oncolo
10. Wang, X., Cosb needs of breast c

REFERENCES

1. Krug, P. (1997). Breast cancer legislation active in several states. AORN Journal, 66(2), 330-333.

2. Advantages and disadvantages of outpatient surgery. (1998). Oncology Nursing Society's 1998 Annual Congress Symposia Highlights, 31.

3. Johannes, L. (1996, Nov. 10). More HMO'S order outpatient mastectomies. Wall Street Journal, B1, B8.

4. Canavan, K. (1997). Nurses fight "drive-through mastectomy"trend. The American Nurse, 29(1), 3,8.

5. Bundred, N., Maguire, P., Reynolds, J., Grimshaw, J., Morris, J., Thomson, L., Bar, L., & Baildam, A. (1998). Randomized controlled trial effects of early discharge after surgery for breast cancer. British Medical Journal, 317(7168): 1275-1279.

6. Bonnema, J., van Wersch, A.M., van Geel, A.N., Pruyn, J.F., Schmitz, P.I., Paul, M.A., & Wiggers, T. (1998). Medical and psychosocial effects of early discharge after surgery for breast cancer: Randomized trial. British Medical Journal, 316(7140), 1267-1271.

7. Burke, C.C., Zabka, C.L., McCarver, K.J., & Singletary, S.E. (1997). Patient satisfaction with 23-hour "short-stay" observation following breast cancer surgery. Oncology Nursing Forum, 24(4), 645-651.

8. Seltzer, M.H. (1995). Partial mastectomy and limited axillary dissection performed as a same day surgical procedure in the treatment of breast cancer. International Surgery, 80(1), 79-81.

9. Wyatt, G.K. & Friedman, L.L. (1998). Physical and psychological outcomes of midlife and older women following surgery and adjuvant therapy for breast cancer. Oncology Nursing Forum, 25(4), 761-768.

10. Wang, X., Cosby, L.G., Harris, M.G., & Liu, T. (1999). Major concerns and needs of breast cancer patients. Cancer Nursing, 22(2), 157-163.

Table 1: INTERVENTION PROTOCOL

Encounter 1 - Telephone Contact 1 (24 hours after discharge)
• Nurse establishes therapeutic relationship by asking about the woman's surgery and answering questions. • Emergent complications assessed (pain, nausea, difficulties with the incision or drain). • Woman is reminded of how to contact her nurse via pager, should any problems develop. • Schedule first in-home visit.
Encounter 2 - In Home Visit 1 (1-3 days after discharge)
• Nurse re-establishes rapport with woman. • Complete history, assessment of vital signs, vision, hearing, weight, allergies, comorbids, cancer history, nutrition, and answers questions. • Remove dressing (if present) and assess incision for healing and approximation. • Assess drain, drainage, and output (checking for color, consistency, and amount). • Teach woman assessment of site, drain management, technique for milking the drain, recording of output (color, consistency, and amount), and provide home instruction sheet on these skills. • Assess for presence of seroma and teach woman assessment skills. • Teach woman indicators of infection and provide home instruction sheet. • Assess symptoms and how they disrupt activities of daily living (pain, fatigue, constipation). • Teach correct use of over-the-counter laxative of choice to prevent constipation while on narcotics. • Encourage to move to non-narcotic pain medication as early as possible to prevent constipation. • Assess and address quality of life (physical issues, social and family interactions, emotional concerns, relationship with health care professional, difficulties with activities of daily living). • Teach ways to improve quality of life through expression of feelings, utilization of family/friendship resources, and participating in enjoyable activities. • Assess and address anxiety by teaching anxiety interrupters including looking up, using controlled breathing, lowering shoulders, slowing thoughts, imagining watching situation from distance. • Give resource guide including information on support groups, counseling services, national cancer organizations, and merchants who carry prostheses and wigs.

• Submit written report to the woman's surgeon reporting on her health status and self-care skills taught.

Table 1: INTERVENTION PROTOCOL, continued

Encounter 3 - Telephone Contact 2 (4-7 days after discharge)
• Includes all interventions from telephone contact 1. • Schedule second in-home visit.

- Assess and address quality of life (physical issues, social and family interactions, emotional concerns, relationship with health care professional, difficulties with activities of daily living).
- Teach ways to improve quality of life through expression of feelings, utilization of family/friendship resources, and participating in enjoyable activities.
- Assess and address anxiety by teaching anxiety interrupters including looking up, using controlled breathing, lowering shoulders, slowing thoughts, imagining watching situation from distance.
- Give resource guide including information on support groups, counseling services, national cancer organizations, and merchants who carry prostheses and wigs.

- Submit written report to the woman's surgeon reporting on her health status and self-care skills taught.

Table 1: INTERVENTION PROTOCOL, continued

Encounter 3 - Telephone Contact 2 (4-7 days after discharge)

- Includes all interventions from telephone contact 1.
- Schedule second in-home visit.

Encounter 4 - In Home Visit 2 (8-14 days after discharge)

- Includes all interventions from in-home visit 1.
- Teach techniques for breast self exam recommended by American Cancer Society (emphasize checking tail of spence, nipple area, using uniform motion, covering entire breast tissue, and surgical incision area once healed).
- Teach methods for minimizing development of lymphedema (protect skin from burns, cuts, and squeezing pressure).
- Teach immediate treatment when breaks in the skin do occur, to elevate the arm if swelling begins, and to contact physician at the first sign of swelling.
- Assess for signs of nerve/circulation impairment and fine motor coordination in affected arm.
- Assess extent of arm range of motion and teach exercises, recommend gradual increase in activities of daily living, progressing to the Reach to Recovery Organization guidelines to regain full range-of-motion.
- Explore additional health services needed and review information on resource guide.
- Submit final written report to surgeon with details of health status, areas of teaching covered, notification that nursing care is completed, and that the woman may contact either their office or the primary care physician if future complications or health concerns develop.

POST-DISCHARGE SEROMA FORMATION FOLLOWING BREAST CANCER SURGERY: IMPLICATIONS FOR THE ADVANCED PRACTICE NURSE

By

Mary J. Bloomfield

A THESIS

Submitted to

Michigan State University

in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE IN NURSING

College of Nursing

1999

ABSTRACT

POST-DISCHARGE SEROMA FORMATION FOLLOWING BREAST CANCER SURGERY: IMPLICATIONS FOR THE ADVANCED PRACTICE NURSE

By

Mary J. Bloomfield

Medical management of breast cancer patients in the United States has changed dramatically in recent years, largely in response to rising health care costs. A variety of surgical procedures are available, including the traditional modified radical mastectomy and new, breast-conserving techniques. Hospital stays of 24 hours or less have become the norm, and patients are expected to perform more self-care actions during their recovery at home. Among these actions is recognition of surgical complications, the most common being seroma formation, a potentially infectious accumulation of fluid in the surgical site. The etiology of seroma is unknown, and prevention is problematic.

Results of this secondary analysis of the federal grant, *A Subacute Care Nursing Intervention for Short-Stay Breast Cancer Surgery* (DAMD17-96-1-6325), Gwen Wyatt, RN, PhD, Principle Investigator, suggest that women undergoing traditional surgery were at five times greater risk for seroma formation compared to women receiving breast-conserving surgery, regardless of the type of post-discharge care they received, or personal characteristics such as body mass index or age. Implications for the Advanced Practice Nurse (APN) on the interdisciplinary team include educating patients about seroma formation, facilitating self-care, and collaborating with tertiary providers in order to prevent serious sequella.

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

DESIGN
Appendix B

STUDY DESIGN - A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

Pre-test
Self-administered instruments at pre-surgical recruitment

Demographics
- Age
- Weight
- Height
- Race
- Co-morbids
- Allergies

Physical
- Functional Status
  - Activity level
  - ADLs
  - ROM

Psychological
- State Anxiety

Quality of Life
- Fact-B Subscales
  - Physical well-being
  - Social/family well-being
  - Relationship with doctor
  - Emotional well-being
  - Functional well-being
  - Additional concerns

Post-Operative
Weeks 1 and 2

Intervention

Experimental Group
- Nurse Phone Contact 1
- Nurse In-Home Visit 1
- Nurse Phone Contact 2
- Nurse In-Home Visit 2
- Conventional Care

Non-Intervention

Control A Group
- Agency Nursing Care
- Conventional Care

Control B Group
- Conventional Care

Post-test
Telephone interview at 4 weeks post-surgery

Physical
- Functional Status
  - Activity level
  - ADLs
  - ROM
- Physical Symptoms
- Post-surgical Self-care
- Preventive Self-care Education
- Surgical Area Sensation
- Surgical Drain

Psychological
- State Anxiety

Quality of Life
- Fact-B Subscales
  - Physical well-being
  - Social/family well-being
  - Relationship with doctor
  - Emotional well-being
  - Functional well-being
  - Additional concerns

Costs
- Complementary Therapy
- Out-of-Pocket for Care
- Patient Initiated Health Services
- Employment/Financial Changes

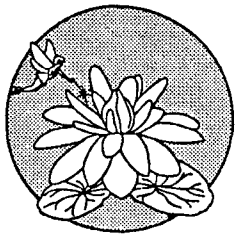
Chart Audit
4 month follow-up

Post-Protocol Events
- Return Visits to Surgeon
- Seroma Formation
- Infection
- Drain Complications
- Further Surgeries
  - Axillary node dissection
  - Lumpectomy
  - Wide excision
  - Mastectomy
  - Double mastectomy
  - Prophylactic mastectomy
  - Other

Follow-up Data
- Cancer Stage

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

GRANT PRODUCTIVITY
Appendix C



A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

September 15, 1996 to September 14, 2001

Productivity Report

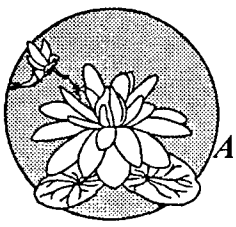
Funded by:
U.S. Army Medical Research
Materiel Command
Department of Defense

Principal Investigator:
Gwen Wyatt, RN, PhD
Associate Professor, College of Nursing
Director, MSU End of Life: Center for Excellence

Co-Principal Investigators:
Barbara Given, RN, PhD, FAAN
Professor, College of Nursing
Associate Director, Institute for Managed Care

Charles Given, PhD
Professor, Department of Family Practice

Michigan State University
East Lansing, Michigan 48824



A New Beginning

A SUBACUTE CARE INTERVENTION FOR SHORT-STAY BREAST CANCER SURGERY

PRODUCTIVITY REPORT

Fall 1996 through Summer 2001

PUBLICATIONS

Wyatt, G.K. & Friedman, L.L. (Submitted 2001). Efficacy of an in-home intervention following short-stay breast cancer surgery. 2001 Oncology Nursing Society Congress, San Diego, CA for Outstanding Research Paper Award.

Wyatt, G.K. & Beckrow, K.C. (2000). A nursing protocol for subacute recovery following breast cancer surgery. Proceedings of the 10th Biennial Conference of European Nurse Researchers, Reykjavik, Iceland, 10, 431-437.

Bloomfield, M. (1999). The effects of early versus delayed exercise on seroma formation and range-of-motion recovery in short-stay breast cancer surgery patients. Master's Thesis, Michigan State University, East Lansing, MI.

REVIEWER

Wyatt, G.K. (2001). Reviewer for Cancer Nursing, Philadelphia, PA: Lippincott, Williams, & Wilkins.

Wyatt, G.K. (2001). Reviewer for Psychosomatics: The Journal of Consultation and Liaison Psychiatry, Washington, D.C.: American Psychiatric Press, Inc.

Wyatt, G.K. (2000-2002). Invited member of Review Team for ONS to review Oncology Nursing Foundation Small Grants Program and Foundation Fellowship Applications (2 year term). Oncology Nursing Society, Pittsburgh, PA.

Wyatt, G.K. (2000, October 27). Participated in focus group that was charged with conducting a 5 year review of the Institute of International Health facilitated by Terrie Taylor, MD, Michigan State University, East Lansing, MI.

Wyatt, G. K. (2000). Reviewer for College of Nursing 50th Anniversary Celebration abstracts, Michigan State University, East Lansing, MI.

Wyatt, G.K. (2000). Reviewer for Cancer Practice, Malden, MA: Blackwell Science, Inc.

Wyatt, G.K. (2000). Reviewer for Poynter Center Applicants, Indiana University, Bloomington, IN.

Wyatt, G.K. (1999-2000). Reviewer for the Journal of Palliative Care, Montreal, Canada.

Wyatt, G.K. (1998-2000). Reviewer for Research in Nursing and Health. New York, NY: John Wiley and Sons, Inc.

Wyatt, G.K. (1997-1998). Reviewer for College of Nursing Research Initiation Grants (CONRIG), Michigan State University, East Lansing, MI.

Wyatt, G.K. (1996-1999). Reviewer for Sigma Theta Tau Alpha Psi Chapter, College of Nursing, Michigan State University, East Lansing, MI.

PRESENTATIONS

Wyatt, G.K. (2001, March 21). Program of breast cancer research. Invited speaker for the Komen Foundation, Lansing, MI.

Wyatt, G.K. (2001, February 8-10). Physical and psychosocial outcomes of breast cancer patients participating in a post-surgical nursing protocol. Poster presentation for the ONS 6th National Conference on Cancer Nursing Research, Ponte Vedra Beach, FL.

Wyatt, G.K. (2000, October 16). Research Overview: Breast Cancer and Complementary Therapies. Presentation for the College of Nursing Research Seminar, Michigan State University, East Lansing, MI.

Wyatt, G.K. & Beckrow, K.C. (2000, May 25). A nursing protocol for subacute recovery following breast cancer surgery. Paper presentation for the 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland.

Wyatt, G.K. (2000, April 13). A nursing and yoga intervention for women with breast cancer. Presentation at Surgical Grand Rounds, Sparrow Health System. Continuing medical education units provided to attendees.

Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November 5). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. Poster session presented at the First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI.

Smania, M., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, October 19). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the American Cancer Society's Great Lakes Cancer Nursing Conference, Novi, MI.

Rovoll, M.D. & **Wyatt, G.K.** (1999, May 13). The challenges of quality assurance in data entry. Paper presented at the 22nd Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Beckrow, K.C., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, April 20). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the Seventh Annual Greater Lansing Nursing Research Day, Ingham Regional Medical Center, Lansing, MI.

Wyatt, G.K. (1998, November 20). Nurse sensitive outcomes for the short-stay breast cancer patient. Paper presented at the Oncology Nursing Society's State-of-the-Knowledge Conference on Nurse Sensitive Outcomes, Pittsburgh, PA.

Wyatt, G.K. & Beckrow, K.C. (1998, July and August). Organizers for the 1998 Summer Research Series, with presentations by Cathy Bradley, PhD, MPA, on health costs, Frederick Tims, PhD, RMT-BC, on music therapy, Daniel Murman, MD, MS, on impaired cognition in cancer patients, Michigan State University, East Lansing, MI.

Wyatt, G.K., Beckrow, K.C., & Bloomfield, M. (1998, June 16). Breast cancer awareness. Paper presented at the Nursing Continuing Education Summer Tuesday Evening Series: Women's Health Issues, Michigan State University, East Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, May 7-10). Bridging the gap between nursing outcomes and the research process: One-step computerized documentation and direct data entry. Poster session presented at the Oncology Nursing Society's 23rd Annual Congress — On Track to a Changing World, San Francisco, CA.

Bloomfield, M. & **Wyatt, G.K.** (1998, April 30). Post-operative seroma formation following breast cancer surgery. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Beckrow, K.C. & **Wyatt, G.K.** (1998, April 30). The impact of an in-home nursing intervention for women following short-stay surgery for breast cancer. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Bloomfield, M. & **Wyatt, G.K.** (1998, April 29). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Greater Lansing Nursing Research Consortium, Nursing Research Day, Lansing, MI.

Sprague, J. & **Wyatt, G.K.** (1998, April 27). Bridging the gap between nursing outcomes and the research process. Poster session presented at the Undergraduate Research Opportunity Program (UROP) 1997-98 Banquet, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1998, April 27). UROP mentor experience. Invited speaker, Undergraduate Research Opportunity Program (UROP) 1997-98 Banquet, Michigan State University, East Lansing, MI.

Bloomfield, M. & **Wyatt, G.K.** (1998, April 3-4). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Graduate School and Council of Graduate Students (COGS), Research Recognition Day, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1998, February 17). Nursing care for breast cancer project. Invited speaker, College of Nursing Research Center Seminar Series, Michigan State University, East Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1997, October 31-November 4). A subacute care intervention for short-stay breast cancer surgery. Poster session presented at the Department of Defense Breast Cancer Research Program Conference — Era of Hope: A Multidisciplinary Report of DoD Progress, Washington, D.C.

Wyatt, G.K. (1997, October 21). Breast cancer: Post-surgical care. Invited speaker, American Cancer Society's 30th Anniversary Great Lakes Cancer Nursing Conference, Novi, MI.

Wyatt, G.K., Bloomfield, M. & Beckrow, K.C. (1997, June and July). Organizers for the 1997 Summer Research Series, with presentations by Given, B., Pathak, D., Neumark, D., and Siegl, E.J., Michigan State University, East Lansing, MI.

Wyatt, G.K. (1996, November). New DOD funding for breast cancer transition care research. Invited speaker, College of Nursing Research Center Seminar Series, Michigan State University, East Lansing, MI.

ABSTRACTS PUBLISHED

Wyatt, G.K. (2001, May 17). Testing of a targeted in-home intervention to address the needs of women following short-stay breast cancer surgery. The 26th Annual Congress of the Oncology Nursing Society, San Diego, CA. Proceedings Book.

Wyatt, G.K. (2001, February 8-10). Physical and psychosocial outcomes of breast cancer patients participating in a post-surgical nursing protocol. ONS 6th National Conference on Cancer Nursing Research, Ponte Vedra Beach, FL. Proceedings Book (219).

Wyatt, G.K., Given, B., & Given, C.W. (2000, June). In-home nursing care for women following breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope. Proceedings Book, 1, (342).

Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November). A conceptual model for an in-home nursing intervention following short stay surgery for breast cancer. First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI. Proceedings Book.

Smania, M., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, October). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. American Cancer Society, Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book, (47).

Rovoll, M.D. & **Wyatt, G.K.** (1999, May). The challenges of quality assurance in data entry. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (8).

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, November). Nurse-sensitive outcomes for the short-stay breast cancer patient. Oncology Nursing Society, State-of-the Knowledge Conference on Nurse-Sensitive Outcomes. Proceedings Book, (35).

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, May). Bridging the gap between nursing outcomes and the research process: One-step computerized documentation and direct data entry. Oncology Nursing Forum, 25(2), 347.

Bloomfield, M. & **Wyatt, G.K.** (1998, April). Post-operative seroma formation following breast cancer surgery. Michigan State University Graduate School and Council of Graduate Students (COGS), Research Recognition Day. Proceedings Book.

Bloomfield, M. & **Wyatt, G.K.** (1998, April). Seroma formation following breast cancer surgery. Greater Lansing Nursing Research Consortium, Nursing Research Day. Proceedings Book.

Bloomfield, M. & **Wyatt, G.K.** (1998, April). Post-operative seroma formation following breast cancer surgery. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (23).

Beckrow, K.C. & **Wyatt, G.K.** (1998, April). The impact of an in-home nursing intervention for women following short-stay surgery for breast cancer. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (23).

Wyatt, G.K. (1997). A subacute care intervention for short-stay breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope: A Multidisciplinary Reporting of DOD Progress. Proceedings Book, 3, (1033).

Wyatt, G.K. (1997). Breast cancer: Post-surgical care. American Cancer Society, 30th Anniversary Great Lakes Cancer Nursing Conference. Proceedings Book, (22).

GRANT FUNDING

Wyatt, G.K., Given, B., Ogle, K., & Shirer, K. (Submitted 2001). Consumer Centered EOL Information: A Public Dissemination Project. Submitted to the Michigan Department of Community Health. (Budget $124,482).

Wyatt, G.K., Given, B.A., Given, C.W., & Pathak, D. (Submitted 2001). Supportive Care for Women with Late Stage Breast Cancer. Submitted to the National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH). (4 year budget $2,367,102).

Wyatt, G.K. & Collins, C. (2/1/00 - 1/31/01). Yoga for Breast Cancer. Pilot funds, Provost Office, Michigan State University. (1 year budget $24,000). Funded.

Gift, A. & Given, B.A. (7/1/99 to 6/30/02). End of Life: Center for Excellence. Competitive Strategic Partnership Grants, Michigan State University Foundation. **(Wyatt, G. K.**, Center Director). (3 year budget, $526,000). Funded.

Paneth, N. (6/1/99 to 5/30/04). Training Clinical Researchers for Community Settings. National Institutes of Health, K-01 grant. **(Wyatt, G.K.** Mentor in clinical research). (5 year budget, $200,000/year). Funded.

Given, C.W., Wyatt, G.K., & Given, B.A. (7/1/98-6/1/00). A Complementary Therapy Intervention for Supportive Care of Cancer Patients. Collaborative partnership between West Michigan Cancer Center, Michigan State University, and the Mary Margaret Walther Program (2 year budget $297,293). Funded.

Wyatt, G.K. (1/1/98-6/1/98). Research Support. Funded 1/1/98 by the Office of the Provost, Michigan State University (Budget, $2,100). Funded.

Wyatt, G.K. (Principal Investigator), Given, C.W., & Given, B.A. (Co-principal Investigators). (9/15/96-9/14/00). A Subacute Care Intervention for Short-Stay Breast Cancer Surgery. Department of Defense, grant #DAMD17-96-1-6325 (4 year budget $799,558). Funded.

GRANT REPORTS

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (2001, September). Report of final year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery." Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (2000, September). Report of 4th year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery." Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1999, October). Report of 3rd year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery". Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1998, October). Report of 2nd year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery". Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1997, September). Report of 1st year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery". Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

PROFESSIONAL PRESENTATIONS ATTENDED BY STAFF

Wyatt, G.K., Vermeesch, C., & Rovoll, M. (2001, March 15). Attended program by Karen Hammelet, RN, MS, CS, entitled "A Program on Colorectal Cancer," sponsored by the Greater Lansing Area Oncology Nursing Society, Lansing, MI.

Wyatt, G.K. (2000, October 4). Attended program by Joan Borysenko, PhD, entitled "Women's Wisdom and Healing Power," sponsored by Centerpoint 2000, Sparrow Women's Services, Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2000, September 20). Attended program by C. Norman Shealy, MD, PhD, entitled "Creating an Accredited Energy Medicine Research Institute," sponsored by the Energy Medicine Research Network Founder's Circle, Ann Arbor, MI.

Beckrow, K.C. (1998, June 15). Attended program by Manfred Stommel, PhD, entitled "Data Management." Sponsored by the MSU College of Nursing, East Lansing, MI.

Wyatt, G.K., & Beckrow, K.C. (1998, April 21). Attended program by Rachel Remen, MD, University of California - San Francisco, School of Medicine entitled, "In the service of life: Finding meaning and mystery in the practice of health care." Program held at the Kellogg Center, Michigan State University, East Lansing, MI.

Wyatt, G.K., & Beckrow, K.C. (1998, March). Attended program by Steven Keller, PhD, University of New Jersey, School of Medicine entitled, "The immune system: Minding the body and embodying the mind." Program held at the Marriott, East Lansing, MI.

GRANT DEVELOPMENT MEETINGS

Wyatt, G.K. (1998, October 12). Attended the Walther Cancer Institute Annual Program, Indiana University, Indianapolis, IN.

STAFF AWARDS

Wyatt, G.K. & Beckrow, K.C. (2000, September 23). Faculty/Student Mentor Award. Honored at the "President's Brunch 2000: Celebrating Students and Mentors at Michigan State University."

Wyatt, G.K. (2000, April). Sigma Theta Tau Research Award. Presented by the Alpha Psi Chapter of Sigma Theta Tau.

Bloomfield, M. (1998, Spring). Awarded the Janice and Alton Granger Endowed Student Scholarship for graduate studies at Michigan State University, College of Nursing, East Lansing, MI.

MEDIA COVERAGE AND PRESS RELEASES

Wyatt, G.K. (2001, February 18). Breast Cancer Recovery Program. Article about the *Yoga for Breast Cancer Program* in the Towne Courier, Okemos, MI.

Wyatt, G.K. (2001, January 18). Inner Balance: Ancient Hindu Art Brings Ease to Mind, Body, and Soul. Article by Matt Treadwell (highlighting the *Yoga for Breast Cancer Program*), in "The State News," Michigan State University, East Lansing, MI.

Wyatt, G.K. (2001, January). Stretching and Relaxation Program for Women who have had Breast Cancer. Article about the *Yoga for Breast Cancer Program* in "Community Health Education Winter Calendar 2001," Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2001). The Good Life. Research Program highlighted in the "Research at Michigan State University Calendar 2001," Michigan State University, East Lansing, MI.

Wyatt, G.K. (2000, September). Stretching and Relaxation Program for Women who have had Breast Cancer. Article about the *Yoga for Breast Cancer Program* in the "Community Health Education Fall Calendar 2000," Sparrow Health System, Lansing, MI.

Wyatt, G.K. (1999, November 15). Research on the Rise. Article by Elizabeth VandenBoom in "The State News," Michigan State University, East Lansing, MI.

Wyatt, G.K. & Collins, C. (1999, November 10). A Yoga Program for Women following Breast Cancer Surgery. Television interview with Adella Uchida on the "Evening News," WILX, Channel 10, Lansing, MI. (Aired November 10, 1999.)

Wyatt, G.K. (1999, October 22). Research at Michigan State University. Radio interview with Jonathan Brunt on "State News Live," Impact Exposure, WDBN, 89 FM, Michigan State University, East Lansing, MI. (Aired on October 22.)

Wyatt, G.K. (1998, August). Short-Stay Mastectomy Patients Don't Go Home Alone. Article in Michigan State University newsletter, "Research News," East Lansing, MI.

Wyatt, G.K., Given, B.A., Given, C.W., & Pathak, D. (1998, June). Hospital to Home. Nursing Care for Breast Cancer Study featured on the Science Coalition Web site, "MSU Research: Discovering a World of Promise," Michigan State University, East Lansing, MI.

Wyatt, G.K. & Sprague, J. (1998, June). McNair/SROP Scholars. Publication highlighting the experiences of the Undergraduate and Scholars Research Programs. Offered through Michigan State University, Office of Supportive Services, East Lansing, MI.

Wyatt, G.K. (1998, Spring). Short-Stay Mastectomy Patients Don't Go Home Alone. Article in Michigan State University newsletter, "MSU Nursing," East Lansing, MI.

Wyatt, G.K. (1997, December 10). Short-Stay Mastectomy Patients Don't Go Home Alone. Press interview for news release through the Office of the Vice President for Research and Graduate Studies, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, November). Breast Cancer Source Guide. Contributor to media release. Contact person: Tom Oswald, Media Communications Department, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, October 28). Breast Cancer Awareness. Television interview with Elizabeth Wooly on "Meridian Magazine," Channel 21, HOM-TV, Okemos Cable Television, Okemos, MI. (aired November 24 - December 7, 1997).

Wyatt, G.K. (1997, October 1). MSU Tip Sheet. Contributor to media release. Contact person: Russ White, Media Communication Department, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, July 17). Nursing Care Following Short-Stay Breast Cancer Surgery. Radio interview with D. Krolick, Broadcast/Photo Division of University Relations, Michigan State University, for National 24 Hour Radio Information Hotline.

Wyatt, G.K. & Bloomfield, M. (1997, April 11). Breast Cancer Surgery. Television interview for WELG, Channel 22 Cable Television, East Lansing, MI. (Aired twice a day April 14 through April 20, 1997).

Wyatt, G.K. (1997, March 25). Mammograms Urged at Age 40. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, March 10). Michigan State University Study to Help Women Diagnosed with Breast Cancer. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, February 18). Longer Hospital Stays Not Always the Answer. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1996, Fall). Investigator Focus. Feature article in Cancer Center at Michigan State University Newsletter, Michigan State University, East Lansing, MI.

COMMUNITY SERVICE

Wyatt, G.K. & Collins, C. (1999-2000). Ongoing eight week yoga education class for women following breast cancer surgery. Conducted at Sparrow Hospital, Lansing, MI.

Wyatt, G.K. (1999, November, 2). Mentor for Yayoi Yagi, visiting professor from the University of Shiga Prefecture, Japan. The objective of the experience was to provide an overview of nursing-based cancer research in the United States.

Wyatt. G.K. (1999, October 16). American Cancer Society, Making Strides against Breast Cancer, Lansing, MI.

LAY PRESENTATIONS AND ARTICLES

Wyatt, G.K. (1996, November 19). The Breast Cancer Experience. Presentation for the Unitarian Universalist Church Women's Group, East Lansing, MI.

STUDENT MENTOR

Wyatt, G.K. (2000-2001). Sponsored sophomore student, Alysia Johnson, from the Undergraduate Research Opportunity Program (UROP). The objective of the experience was to help the student develop a basic understanding and appreciation for research.

Wyatt, G.K. (2000, May). Mentor for visiting nursing students, Bronwyn Tunnage and Katherine Mardle, from the Nightingale Institute, King's College, London, England. The objective of the experience was to provide an opportunity to learn about breast cancer care and research in the United States.

Wyatt, G.K. (1999, November). Mentor for visiting graduate student, Sylvia Krumm, from Albert-Ludwigs University, Freiburg, Germany. The objective of the experience was to provide an understanding of the nursing research process.

Wyatt, G.K., Bloomfield, M., & Rovoll, M.D. (1998, January 8). Health Professions Experience. Study staff provided a required experience for East Lansing High School chemistry class students in a health profession environment. Students spent an afternoon learning about the profession of nursing, breast cancer, and the goals of the Nursing Care for Breast Cancer study.

Wyatt, G.K. (1997-1998). Sponsored freshman student, Jill Sprague, from the Undergraduate Research Opportunity Program (UROP). The objective of the experience was to help the student develop a basic understanding and appreciation for research.

Wyatt, G.K. (1998, February). Mentor for nursing students from the Florence Nightingale Institute during their visit to the MSU College of Nursing. The objective of the experience was to provide the students with a brief overview of breast cancer nursing research in the United States.

Wyatt, G.K. (1996-Present). Mentor for graduate students working on grant. The objective of the experience is to provide opportunities to present research at professional conferences, develop writing skills by participating in manuscript development, and provide guidance in students' pursuit of research/professional careers.

Wyatt, G.K. (1996-Present). Mentor for undergraduate students working on grant. The objective of the experience is to provide opportunities to be involved in the research process and encourage professional development.

DISSERTATION AND THESIS

Bloomfield, M. (1999). The effects of early versus delayed exercise on seroma formation and range of motion recovery in short-stay breast cancer surgery patients. Master's Thesis, Michigan State University, East Lansing, MI.

INTERNAL PUBLICATIONS

Quality Assurance Manual ..... July 1997
Nursing Guide to Paradox Computer Program ..... June 1997
Patient Charting Forms ..... June 1997
Recruiter Manual, Pontiac site ..... May 1997
Interview Manual ..... March 1997
Nurse Intervener Manual ..... February 1997
Recruiter Manual, Lansing site ..... January 1997

WEB SITE DEVELOPMENT

Wyatt, C., Beckrow, K.C., & Wyatt, G.K. (1998, May). Nursing Care for Breast Cancer Web Site Development. Site gives an overview of study including purpose and aims, study design, nursing protocol, instruments used, funding source, study members, participating surgeons, bibliography of study related articles, and breast cancer resources. (www.msu.edu/~nurse/bc)

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

PRINCIPAL INVESTIGATOR CURRICULUM VITAE

Appendix D

CURRICULUM VITAE

NAME: Gwen Karilyn Wyatt

HOME ADDRESS: 3918 E. Sunwind Drive
Okemos, Michigan 48864

HOME TELEPHONE: (517) 332-1221

BUSINESS ADDRESS: College of Nursing
A108 Life Sciences Building
Michigan State University
East Lansing, Michigan 48824

BUSINESS TELEPHONE: (517) 353-6672 or (517) 432-5511

PRESENT POSITION: Associate Professor, College of Nursing
Director, End of Life: Center for Excellence

EDUCATION

1988	Ph.D.	Michigan State University, East Lansing, Michigan
1980	M.S.N.	Wayne State University, Detroit, Michigan
1975	R.N.	Henry Ford Hospital School of Nursing, Detroit, Michigan
1973	M.A.	Michigan State University, East Lansing, Michigan
1969	B.A.	Michigan State University, East Lansing, Michigan

Registered Nurse, licensed in the State of Michigan; Number 111964
Certified Clinical Specialist in Medical-Surgical Nursing, American Nurse Credentialing Center, Current through December 31, 2002.

PROFESSIONAL WORK EXPERIENCE

Title	*Location*	*Date*
Director, End of Life: Center for Excellence	Michigan State University East Lansing, Michigan	1/01 to present
Associate Professor Assistant Professor	College of Nursing Michigan State University East Lansing, Michigan	7/95 to present 9/80 to 7/95
Practitioner, Hypertension Program	Dr. Clifford Hale Lansing, Michigan	10/80 to 1/83

Title	*Location*	*Date*
Instructor, Medical/Surgical Nursing	Lansing Community College Lansing, Michigan	3/80 to 8/80 9/75 to 6/77
Director, Camp Health Clinic	Camp Tamarack Ortonville, Michigan	6/79 to 9/79
Instructor, Cardiac Care	School of Nursing Hurley Medical Center Flint, Michigan	9/77 to 6/78
Staff Nurse/Charge Nurse	E. W. Sparrow Hospital Lansing, Michigan	9/75 to 5/77

INTERNATIONAL EXPERIENCE

Title	*Location*	*Date*
Oncology Lecturer and Consultant	Christian Medical College College of Nursing Vellore, South India	1/91 to 4/91 Sabbatical
Oncology Consultant	Ministry of Health Division of Nursing Trinidad, West Indies	6/89 to 7/89
Oncology Lecturer	Langmore Health Foundation Trinidad, West Indies	3/90 to 4/90

PUBLICATIONS

Wyatt, G.K. & Friedman, L.L. (Submitted 2001). Efficacy of an in-home intervention following short-stay breast cancer surgery. 2001 Oncology Nursing Society Congress, San Diego, CA for Outstanding Research Paper Award.

Ogle, K.S., Mavis, B., & **Wyatt, G.K.** (In Press). Physicians and hospice care: Attitudes, knowledge, and referrals. Journal of Palliative Medicine.

Wyatt, G.K. & Friedman, L.L (In Press). The Long-Term Quality of Life (LTQL) Instrument for female cancer survivors. In O.L. Strickland and C. DiIorio (Eds.), Measurement of Nursing Outcomes: Focus on the Patient. New York: Springer Publishing.

Wyatt, G.K., Ogle, K.S., & Given B.A. (2000, December). Access to hospice: A perspective from the bereaved. Journal of Palliative Medicine, 3(4), 433-440.

Wyatt, G.K. & Beckrow, K.C. (2000). A nursing protocol for subacute recovery following breast cancer surgery. Proceedings of the 10th Biennial Conference of European Nurse Researchers, Reykjavik, Iceland, 10, 431-437.

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999). Complementary therapy use among older cancer patients. Cancer Practice, 7(3), 136-144.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999). A profile of bereaved caregivers following provision of terminal care. Journal of Palliative Care, 15(1), 13-25.

Wyatt, G.K. & Friedman, L.L. (1998). Physical and psychosocial outcomes of midlife and older women following surgery and adjuvant therapy for breast cancer. Oncology Nursing Forum, 25(4), 761-768.

Wyatt, G.K., Kurtz, M.E., Friedman, L.L., Given, B.A., & Given, C.W. (1997). Preliminary testing of the Long-Term Quality of Life (LTQL) Instrument for female cancer survivors. Journal of Nursing Measurement, 4(2), 153-170.

Wyatt, G.K. & Friedman, L.L. (1996). Development and testing of a quality of life model for long-term female cancer survivors. Quality of Life Research, 5, 387-394.

Wyatt, G.K. & Friedman, L.L. (1996). Long-term female cancer survivors: Quality of life issues and clinical implications. Cancer Nursing, 19(1), 1-7.

Kurtz, M.E., **Wyatt, G.K.**, & Kurtz, J. (1995). Psychological and sexual well-being, philosophical/spiritual views, and health habits of long term cancer survivors. Health Care for Women International, 16, 253-262.

Wyatt, G.K., Kurtz, M.E, & Liken, M. (1993). Breast cancer survivors: An exploration of quality of life issues. Cancer Nursing, 16(6), 440-448.

Dimmer, S., **Wyatt, G.K.** & Carroll, J. (1990). Uses of humor in psychotherapy. Psychological Reports, 66, 795-801.

REVIEWER

Wyatt, G.K. (2000-2002). Reviewer for Oncology Nursing Society, Small Grant Program, Pittsburgh, PA.

Wyatt, G.K. (2001). Reviewer for Cancer Nursing, Philadelphia, PA: Lippincott, Williams, & Wilkins.

Wyatt, G.K. (2001). Reviewer for Psychosomatics: The Journal of Consultation and Liaison Psychiatry, Watshington, D.C.: American Psychiatric Press, Inc.

Wyatt, G.K. (2000-2002). Invited member of Review Team for ONS to review Oncology Nursing Foundation Small Grants Program and Foundation Fellowship Applications (2 year term). Oncology Nursing Society, Pittsburgh, PA.

Wyatt, G.K. (2000, October 27). Participated in focus group that was charged with conducting a 5 year review of the Institute of International Health facilitated by Terrie Taylor, MD, Michigan State University, East Lansing, MI.

Wyatt, G. K. (2000). Reviewer for College of Nursing 50th Anniversary Celebration abstracts, Michigan State University, East Lansing, MI.

Wyatt, G.K. (2000). Reviewer for Cancer Practice, Malden, MA: Blackwell Science, Inc.

Wyatt, G.K. (2000). Reviewer for Poynter Center Applicants, Indiana University, Bloomington, IN.

Wyatt, G.K. (1999-2000). Reviewer for the Journal of Palliative Care, Montreal, Canada.

Wyatt, G.K. (1998-2001). Reviewer for Research in Nursing and Health, New York, NY: John Wiley and Sons, Inc.

Wyatt, G.K (1997-1998). Reviewer for College of Nursing Research Initiation Grants (CONRIG), Michigan State University, East Lansing, MI.

Wyatt, G.K (1996-1999). Reviewer for Sigma Theta Tau Alpha Psi Chapter, College of Nursing, Michigan State University, East Lansing, MI.

ABSTRACTS ACCEPTED

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (2000, March 31-April 3). Complementary therapy use among older cancer patients. Accepted for poster presentation to the American Nurses' Association, 2000 Biennial Conference & Exposition, Indianapolis, IN. Declined.

ABSTRACTS PUBLISHED

Wyatt, G.K., Kozachik, S., Given, C.W., & Given, B.A. (2000, June 17). Acceptance and use of complementary therapy by cancer patients and family members. The 11th Annual International Society for the Study of Subtle Energies and Energy Medicine Conference, Boulder, CO. Proceedings Book.

Wyatt, G.K. (2000, May 17). Testing of a targeted in-home intervention to address the needs of women following short-stay breast cancer surgery. The 26th Annual Congress of the Oncology Nursing Society, San Diego, CA. Proceedings Book.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (2001, March 28). A profile of bereaved caregivers following provision of terminal care. The Greater Lansing Nursing Research Consortium's 9th Annual Capital Area Research Day, Lansing, MI. Proceedings Book.

Wyatt, G.K. (2001, February 8-10). Physical and psychosocial outcomes of breast cancer patients participating in a post-surgical nursing protocol. ONS 6th National Conference on Cancer Nursing Research, Ponte Vedra Beach, FL. Proceedings Book (219).

Wyatt, G.K., Given, C.W., & Given, B.A. (2000, October 17-18). Complementary therapy for chemotherapy patients and their family caregivers. Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book.

Wyatt, G.K., Kozachik, S., Given, C.W., & Given, B.A. (2000, October 12). Complementary therapy for chemotherapy patients and their family caregivers. College of Nursing Homecoming 2000 Research Conference "Reflecting on the Past, Shaping the Future," Michigan State University, East Lansing, MI. Proceedings Book.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (2000, October 12). A profile of bereaved caregivers following provision of terminal care. College of Nursing Homecoming 2000 Research Conference "Reflecting on the Past, Shaping the Future," Michigan State University, East Lansing, MI. Proceedings Book.

Wyatt, G.K., Given, B., & Given, C.W. (2000, June). In-home nursing care for women following breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope, Washington, DC. Proceedings Book, 1, (342).

Wyatt, G.K., Given, C.W., & Given, B.A. (2000, May). A nursing protocol for subacute recovery following breast cancer surgery. The 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland. Book of Abstracts, (42).

Wyatt, G.K., Given, C.W., Given, B.A., & Friedman, L.L. (2000, April). A profile of bereaved caregivers following provision of terminal care. The Midwest Nursing Research Society, 24th Annual Research Conference, Dearborn, MI. Proceedings Book, (162).

Beckrow, K.C., **Wyatt, G.K.**, Friedman, L.L., Given, B.A., & Given, C.W. (2000, March 29). Complementary therapy use among older cancer patients The Greater Lansing Nursing Research Consortium's 8th Annual Capital Area Research Day, Lansing, MI. Proceedings Book.

Wyatt, G.K., Given, C.W., Given, B.A., Kozachik, S. (2000, March 29). Complementary therapy for chemotherapy patients and their family caregivers. The Greater Lansing Nursing Research Consortium's 8th Annual Capital Area Research Day, Lansing, MI. Proceedings Book.

Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI. Proceedings Book.

Beckrow, K.C., **Wyatt, G.K.**, Friedman, L.L. Given, C.W., & Given, B.A. (1999, October). Complementary therapy use among older cancer patients. American Cancer Society, Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book, (38).

Smania, M., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, October). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. American Cancer Society, Great Lakes Cancer Nursing Conference, Novi, MI. Proceedings Book, (47).

Beckrow, K.C., **Wyatt, G.K.**, Friedman, L.L., Given, C.W., & Given, B.A. (1999, May). Complementary therapy use among older cancer patients. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (8).

Rovoll, M.D. & **Wyatt, G.K.** (1999, May). The challenges of quality assurance in data entry. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (8).

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999, April). Complementary therapy use among older cancer patients. Midwest Nursing Research Society, 23rd Annual Research Conference. Proceedings Book.

Wyatt, G.K. & Given, B.A. (1999, February). Recommendations for pro-active hospice education: A perspective from the bereaved. Oncology Nursing Society, the American Cancer Society, and the Association of Pediatric Oncology Nurses, 5th National Conference on Cancer Nursing Research. Syllabus and Conference Guide, (211).

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, February). A profile of bereaved caregivers following provision of terminal care. 11th MASCC International Symposium, Supportive Care in Cancer. Supportive Care in Cancer Program, Talk Summaries, and Abstract Book, (185).

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999, February). Complementary therapy use among older cancer patients. 11th MASCC International Symposium, Supportive Care in Cancer. Supportive Care in Cancer Program, Talk Summaries, and Abstract Book, (153).

Friedman, L.L. & **Wyatt, G.K.** (1999, February). Physical and psychosocial outcomes following breast cancer surgery: Implications for supportive care. 11th MASCC International Symposium, Supportive Care in Cancer. Supportive Care in Cancer Program, Talk Summaries, and Abstract Book, (186).

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, November). Nurse-sensitive outcomes for the short-stay breast cancer patient. Oncology Nursing Society, State-of-the Knowledge Conference on Nurse-Sensitive Outcomes. Proceedings Book, (35).

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, May). Bridging the gap between nursing outcomes and the research process: One-step computerized documentation and direct data entry. Oncology Nursing Forum, 25(2), 347.

Bloomfield, M. & **Wyatt, G.K.** (1998, April). Post-operative seroma formation following breast cancer surgery. Graduate School and Council of Graduate Students (COGS), Research Recognition Day, Michigan State University. Proceedings Book.

Bloomfield, M. & **Wyatt, G.K.** (1998, April). Seroma formation following breast cancer surgery. Greater Lansing Nursing Research Consortium, Nursing Research Day. Proceedings Book.

Bloomfield, M. & **Wyatt, G.K.** (1998, April). Post-operative seroma formation following breast cancer surgery. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (23).

Beckrow, K.C. & **Wyatt, G.K.** (1998, April). The impact of an in-home nursing intervention for women following short-stay surgery for breast cancer. Michigan Family Practice Research Day, Michigan State University. Proceedings Book, (23).

Wyatt, G.K. (1997). Preliminary testing of the Long-Term Quality of Life (LTQL) instrument for female cancer survivors. Oncology Nursing Forum, 24(2), 311.

Wyatt, G.K. (1997). A subacute care intervention for short-stay breast cancer surgery. Department of Defense Breast Cancer Research Program Conference — Era of Hope: A Multidisciplinary Reporting of DOD Progress. Proceedings Book, 3, (1033).

Wyatt, G.K. (1997). Breast cancer: Post-surgical care. American Cancer Society, 30th Anniversary Great Lakes Cancer Nursing Conference. Proceedings Book, (22).

Wyatt, G.K. (1997). Physical and psychosocial needs of midlife and older women following surgery and adjuvant therapy for breast cancer. The American Cancer Society, Fourth National Conference on Cancer Nursing Research. Abstract Book, (90).

Wyatt, G.K. (1996). Quality of life of female cancer survivors. Supportive Care in Cancer, 4(3), 232.

Wyatt, G. K. (1996). Models for assessing quality of life among female cancer survivors. Michigan Family Practice Research Day, Michigan State University. Proceedings Book.

Wyatt, G. K. (1995). Short-term sequelae of midlife and older breast cancer patients. Oncology Nursing Forum, 22(2), 371.

Wyatt, G. K. (1995). Short-term sequelae of midlife and older breast cancer patients. Midwest Nursing Research Society, 19, 103.

FUNDING

Wyatt, G.K., Given, B., Ogle, K., & Shirer, K. (Submitted 2001). Consumer Centered EOL Information: A Public Dissemination Project. Submitted to the Michigan Department of Community Health. (Budget $124,482).

Wyatt, G.K., Given, B.A., Given, C.W., & Pathak, D. (Submitted 2001). Supportive Care for Women with Late Stage Breast Cancer. Submitted to the National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH). (4 year budget $2,367,102).

Wyatt, G.K. & Collins, C. (2/1/00 - 1/31/01). Yoga for Breast Cancer. Pilot funds, Provost Office, Michigan State University. (1 year budget $24,000). Funded.

Gift, A. & Given, B.A. (7/1/99 to 6/30/02). End of Life: Center for Excellence. Competitive Strategic Partnership Grants, Michigan State University Foundation. **(Wyatt, G. K.**, Center Director). (3 year budget, $526,000). Funded.

Paneth, N. (6/1/99 to 5/30/04). Training Clinical Researchers for Community Settings. National Institutes of Health, K-01 grant. **(Wyatt, G.K.** Mentor in clinical research). (5 year budget, $200,000/year). Funded.

Given, C.W., **Wyatt, G.K.**, & Given, B.A. (7/1/98 to 6/30/00). A Complementary Therapy Intervention for Supportive Care of Cancer Patients. Collaborative partnership between West Michigan Cancer Center, Michigan State University, and the Mary Margaret Walther Program (2 year budget $297,293). Funded.

Wyatt, G.K. (1/1/98-6/1/98). Research Support. Office of the Provost, Michigan State University (Budget $2,100). Funded.

Wyatt, G.K., Given, C.W., & Given, B.A. (9/15/96-9/14/00). A Subacute Care Intervention for Short-Stay Breast Cancer Surgery. Department of Defense, grant #DAMD17-96-1-6325 (4 year budget $799,558). Funded.

Given, B.A. & Ogle, K. (4/95-12/97). Improving Access to Hospice Care: A Professional/Family Partnership. All-University Outreach Grant. **(Wyatt, G.** conducted focus group portion of grant). (2 year budget $14,434). Funded.

Wyatt, G.K. (1995). Transition Concerns of Women Who Undergo Short Stay Breast Cancer Surgery. Sparrow Hospital Breast Cancer Support Group. Unfunded pilot study.

Given, C.W. & Given, B.A. (5/92-4/97). Rural Partnership Linkage for Cancer Care. **(Wyatt, G.K.** Presented on breast and ovarian cancers to providers in the rural partnership). National Institutes of Health/National Cancer Institute, grant #RO1CA56338-03. (5 year budget $2,076,266). Funded.

Petropoulos, E. (1994-1997). Minority International Research Training Application to NIH. (**Wyatt, G.K.** Oncology Nurse Collaborator for India). Folgarty International Center, National Institutes of Health. (3 year budget $1,138,678). Funded.

Given, B.A. & Given, C.W. (1993-1996). Family Home Care For Cancer: A Community Based Model. (**Wyatt, G.K.** Nurse Collaborator). National Institute for Nursing Research. (3 year budget $2,002,617). Funded.

Wyatt, G.K. (1993-1994). A Comparative Assessment of Short Term Sequelae of Elderly Women Who Experience Surgery Only vs Surgery Plus Adjuvant Therapy for Treatment of Breast Cancer. American Cancer Society Institutional Grants to Michigan State University. (1 year budget $12,153). Funded.

Wyatt, G.K. (1992-1994). Quality of Life Assessment of Long Term Female Cancer Survivors. Oncology Nursing Society. (2 year budget $7,500). Funded.

Wyatt, G.K. (1992). Breast Cancer Survivors: An Exploration of Quality of Life Issues. College of Nursing, Research Initiation Grant, Michigan State University. (1 year budget $2,000). Funded.

Metzler, J. (1989-91). Internationalizing Curricula for Rural Michigan Community Colleges. (**Wyatt, G.K.** conducted 4 day workshop for nursing faculty statewide on internationalizing the curriculum). Kellogg Foundation University Outreach Grant. Funded.

INSTRUMENT UTILIZATION IN RESEARCH

Wyatt, G.K., Kurtz, M.E., Friedman, L.L., Given, B.A., & Given, C.W. (1997). Long-Term Quality of Life (LTQL) Instrument. This instrument assesses quality of life of long-term female cancer survivors.

LTQL currently being used by the following individuals/sites:
Avis, N. (2000). New England Research Institutes, Watertown, MA.
Rice, R. (2000). Social Research Center, Calvin College, Grand Rapids, MI.
Freidenreich, G. (2000). Requested for dissertation work on breast cancer survivors, Boca Raton, FL.
Mihaylova, Z. (1999). Sofia Cancer Center, Sofia, Bulgaria.
Poorman, P.B. (1999). University of Wisconsin-Whitewater.
Cella, D. (1999). Center for Outcomes, Research, & Education, Northwestern Healthcare.
Trentham-Dietz, A. & Remington, P. (1998). University of Wisconsin.
Stewart, J., Mishel, M., Germino, B. & Nakman (1998).University of North Carolina.
Leedham, B. (1998). UCLA Jonsson Comprehensive Cancer Center.
Muraoka, M. (1998). University of Hawaii at Manoa - Cancer Research Center of Hawaii.
Laird, B. (1998). University of Alabama - Birmingham.
Legro, M. (1998). MEDTAP International.
Taeuber, R.C. (1998). On-Line Guide to Quality-of-Life Assessment (OLGA).

AWARDS

Wyatt, G.K. & Beckrow, K.C. (2000, September 23). Faculty/Student Mentor Award. Honored at the "President's Brunch 2000: Celebrating Students and Mentors at Michigan State University."

Wyatt, G.K. (2000, April). Sigma Theta Tau Research Award. Presented by the Alpha Psi Chapter of Sigma Theta Tau.

Wyatt, G.K. (1992). Bristol-Myers Oncology Division Research Award. Presented by the Oncology Nursing Foundation.

ORGANIZATION PARTICIPATION

International:
Phi Beta Delta - Honor Society for International Scholars, 1990-2001.
Michigan International Nursing Education Resource, 1992-1999.
Sigma Theta Tau International, 1981-2001.

National:
Oncology Nursing Society, 1987-2001.
- ONS Research Representative for 2002 Congress Team, 2001-2002.
- ONS Review Team Member for conference abstracts, 2000-2002.
- ONS Evidence-Based Research Advisory Panel, 2000-2001.
- ONS Reviewer for Small Grants Program, 2000-2002.

American Nurses' Association, 1980-1999.
Nurse Healers Professional Association (Midwest Coordinator, 1985-2001).

Regional:
Capitol Area District Nurses Association, 1980-2001.
Midwest Nursing Research Society, 1985-2001.

State:
Michigan Nurses' Association, 1980-1999.

Local:
Sparrow Health System Complementary Therapy Integration Committee, 1999-2001
Sparrow Health System Medical Humanities Committee (Program Committee), 1998-2001.
Sigma Theta Tau, Alpha Psi Chapter (Officer 1990-94, 2000-present), Member 1981-2001.
Phi Beta Delta, Alpha Alpha Chapter, 1990-2001.

University:
University Committee on Faculty Affairs, 2000-2002
University Hearing Board, 1993-1999.
University Appeals Board, 1996-1999.
University Curriculum Committee, 1995-1996.
Ad Hoc Review Committee for the Institute of International Health, 1995.

International Studies and Programs Consulting and Advising, 1989-1994.
Institute of International Health Committee, 1989-1992.
Academic Council, 1989-1990.
Faculty Council, 1989-1990.

College of Nursing: Tenure System Search Committee, 1995-2001 (Chair, 1995-1997, 2000-2001).
Research Committee, 1997-2001 (Chair, 2000-2001).
Graduate Program Committee, 2000-2002.
PhD Committee and Subcommittee, 1998-1999.
Governance Retreat Committee (Chair of Merit, Reappointment Promotion, Tenure, and Evaluation Subcommittee, 1998-1999).
Two-Year Course Assignment Committee, 1997-1998.
Ad Hoc Merit Committee (Chair, 1998-1999).
Ad Hoc Revised Graduate (MSN) Curriculum Review Committee, 1998-1999.
Ad Hoc Research Center Committee, 1996-1998.
Ad Hoc Two Year Planning Committee, 1995; 1996-1997.
Ad Hoc Two Year Scheduling Committee, 1995-1998.
Ad Hoc Faculty Development Committee, 1994.
Ad Hoc Course Coordinators Committee, 1993-1999.
Ad Hoc Assistant Dean Search Committee, 1999-2000.
Ad Hoc Self Study Committee, 1993-1994.
Ad Hoc Space Committee, 1993-1994.
Faculty Advisory Council, 1988-1990.

PRESENTATIONS

Wyatt, G.K., Kozachik, S., Given, C.W., & Given, B.A. (2001, June 16-20). Acceptance and use of complementary therapy by cancer patients and family members. Presentation for the 11th Annual International Society for the Study of Subtle Energies and Energy Medicine, Boulder, CO.

Wyatt, G.K. (2001, May 17-26). Testing of a targeted in-home intervention to address the needs of women following short-stay breast cancer surgery. Presentation for the 26th Annual Congress of the Oncology Nursing Society, San Diego, CA.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (2001, March 28). A profile of bereaved caregivers following provision of terminal care. Poster session presented at the Greater Lansing Nursing Research Consortium's 9th Annual Capital Area Research Day, Lansing, MI.

Wyatt, G.K. (2001, March 21). Program of breast cancer research. Invited speaker for the Komen Foundation, Lansing, MI.

Wyatt, G.K. (2001, February 8-10). Physical and psychosocial outcomes of breast cancer patients participating in a post-surgical nursing protocol. Poster presentation for the ONS 6th National Conference on Cancer Nursing Research, Ponte Vedra Beach, Florida.

Wyatt, G.K., Kozachik, S., Given, C.W., & Given, B.A. (2000, October 17). Complementary therapy for chemotherapy patients and their family caregivers. Poster presentation for the Great Lakes Cancer Nursing Conference, Novi, MI.

Wyatt, G.K. (2000, October 16). Research Overview: Breast Cancer and Complementary Therapies. Presentation for the College of Nursing Research Seminar, Michigan State University, East Lansing, MI.

Wyatt, G.K., Kozachik, S., Given, C.W., & Given, B.A. (2000, October 12). Complementary therapy for chemotherapy patients and their family caregivers. Poster presentation for the College of Nursing Homecoming 2000 Research Conference "Reflecting on the Past, Shaping the Future," Michigan State University, East Lansing, MI.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (2000, October 12). A profile of bereaved caregivers following provision of terminal care. Poster presentation for the College of Nursing Homecoming 2000 Research Conference "Reflecting on the Past, Shaping the Future," Michigan State University, East Lansing, MI.

Wyatt, G.K. & Beckrow, K.C. (2000, May 25). A nursing protocol for subacute recovery following breast cancer surgery. Paper presentation for the 10th Biennial Conference of the Workgroup of European Nurse Researchers, Reykjavik, Iceland.

Wyatt, G.K. (2000, May 10). Therapeutic touch in healthcare. Invited speaker for the Center for Health, Humanities, and Well-Being program for hospital associates, Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2000, April 13). A nursing and yoga intervention for women with breast cancer. Presentation at Surgical Grand Rounds, Sparrow Health System. Continuing medical education units provided to attendees.

Wyatt, G.K., Given, C.W., Given, B.A., & Friedman, L.L. (2000, April 3). A profile of bereaved caregivers following provision of terminal care. Poster session presented at the Midwest Nursing Research Society, 24th Annual Research Conference, Dearborn, MI.

Beckrow, K.C., **Wyatt, G.K.**, Friedman, L.L., Given, B.A., & Given, C.W. (2000, March 29). Complementary therapy use among older cancer patients. Poster session presented at the Greater Lansing Nursing Research Consortium's 8th Annual Capital Area Research Day, Lansing, MI.

Wyatt, G.K., Kozachik, S., Given, C.W., & Given, B.A. (2000, March 29). Complementary therapy for chemotherapy patients and their family caregivers. Poster session presented the Greater Lansing Nursing Research Consortium's 8th Annual Capital Area Research Day, Lansing, MI.

Wyatt, G.K. (2000, March 29). Complementary therapies in research practice. Invited speaker at the Greater Lansing Nursing Research Consortium's 8th Annual Capital Area Research Day, Lansing, MI.

Wyatt, G.K., Given, C.W., & Given, B.A. (1999, November 5). A conceptual model for an in-home intervention following short stay surgery for breast cancer. Poster session presented at the First Annual Symposium of the Michigan Academic Consortium of Nurse Managed Primary Care Centers, Lansing, MI.

Beckrow, K.C, **Wyatt, G.K.**, Friedman, L.L. Given, C.W., & Given, B.A. (1999, October 19). Complementary therapy use among older cancer patients. Poster session presented at the American Cancer Society's Great Lakes Cancer Nursing Conference, Novi, MI.

Smania, M., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, October 19). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the American Cancer Society's Great Lakes Cancer Nursing Conference, Novi, MI.

Beckrow, K.C., **Wyatt G.K.**, Friedman, L.L., Given, C.W,. & Given, B.A. (1999, May 13). Complementary therapy use among older cancer patients. Paper presented at the 22nd Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Rovoll, M.D. & **Wyatt, G.K.** (1999, May 13). The challenges of quality assurance in data entry. Paper presented at the 22nd Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Beckrow, K.C., **Wyatt, G.K.**, Given, C.W., & Given, B.A. (1999, April 20). A conceptual model for an in-home nursing intervention following short-stay surgery for breast cancer. Poster session presented at the Seventh Annual Greater Lansing Nursing Research Day, Ingham Regional Medical Center, Lansing, MI.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, April 20). A profile of bereaved caregivers following provision of terminal care. Poster session presented at the Seventh Annual Greater Lansing Nursing Research Day, Ingham Regional Medical Center, Lansing, MI.

Wyatt, G.K. (1999, March 10). Guided imagery application in health care. Invited speaker at the Center for Health, Humanities, and Well-Being Seminar Series, Sparrow Health System, Lansing, MI.

Wyatt, G.K., Friedman, L.L., Given, C.W., & Given, B.A. (1999, February 18-20). A profile of bereaved caregivers following provision of terminal care. Poster session presented at the 11th MASCC International Symposium, Supportive Care in Cancer, Nice, France.

Wyatt, G.K., Friedman, L.L., Given, C.W., Given, B.A., & Beckrow, K.C. (1999, February 20). Complementary therapy use among older cancer patients. Paper presented at the 11th MASCC International Symposium, Supportive Care in Cancer, Nice, France.

Friedman, L.L. & **Wyatt, G.K.** (1999, February 18-20). Physical and psychosocial outcomes following breast cancer surgery: Implications for supportive care. Poster session presented at the 11th MASCC International Symposium, Supportive Care in Cancer, Nice, France.

Wyatt, G.K. (1998, November 20). Nurse sensitive outcomes for the short-stay breast cancer patient. Paper presented at the Oncology Nursing Society State-of-the-Knowledge Conference on Nurse Sensitive Outcomes, Pittsburgh, PA.

Wyatt, G.K. (1998, November 17). Therapeutic touch: Evidence and practice. Invited speaker at the Michigan Complementary and Alternative Research Center Seminar, School of Medicine, University of Michigan, Ann Arbor, MI.

Wyatt, G.K. & Beckrow, K.C. (1998, July and August). Organizers for the 1998 Summer Research Series, with presentations by Cathy Bradley, PhD, MPA, on health costs, Frederick Tims, PhD, RMT-BC, on music therapy, Daniel Murman, MD, MS, on impaired cognition in cancer patients, Michigan State University, East Lansing, MI.

Wyatt, G.K., Beckrow, K.C., & Bloomfield, M. (1998, June 16). Breast cancer awareness. Paper presented at the Nursing Continuing Education Summer Tuesday Evening Series: Women's Health Issues, Michigan State University, East Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, May 7-10). Bridging the gap between nursing outcomes and the research process: One-step computerized documentation and direct data entry. Poster session presented at the Oncology Nursing Society's 23rd Annual Congress — On Track to a Changing World, San Francisco, CA.

Bloomfield, M. & **Wyatt, G.K.** (1998, April 30). Post-operative seroma formation following breast cancer surgery. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Beckrow, K.C. & **Wyatt, G.K.** (1998, April 30). The impact of an in-home nursing intervention for women following short-stay surgery for breast cancer. Paper presented at the 21st Annual Michigan Family Practice Research Day, Michigan State University, East Lansing, MI.

Bloomfield, M. & **Wyatt, G.K.** (1998, April 29). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Greater Lansing Nursing Research Consortium, Nursing Research Day, Lansing, MI.

Sprague, J. & **Wyatt, G.K.** (1998, April 27). Bridging the gap between nursing outcomes and the research process. Poster session presented at the Undergraduate Research Opportunity Program (UROP) 1997-98 Banquet, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1998, April 27). UROP mentor experience. Invited speaker at the Undergraduate Research Opportunity Program (UROP) 1997-98 Banquet, Michigan State University, East Lansing, MI.

Bloomfield, M. & **Wyatt, G.K.** (1998, April 3-4). Post-operative seroma formation following breast cancer surgery. Poster session presented at the Graduate School and Council of Graduate Students (COGS), Research Recognition Day, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1998, February 17). Nursing care for breast cancer project. Invited speaker at the College of Nursing Research Center, Research Seminar Series, Michigan State University, East Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1997, October 31-November 4). A subacute care intervention for short-stay breast cancer surgery. Poster session presented at the Department of Defense Breast Cancer Research Program Conference — Era of Hope: A Multidisciplinary Report of DoD Progress, Washington, D.C.

Wyatt, G.K. (1997, October 21). Breast cancer: Post-surgical care. Invited speaker at the 30th Anniversary Great Lakes Cancer Nursing Conference of the American Cancer Society, Novi, MI.

Wyatt, G.K. & Dimmer, S. (1997, August 8-10). Therapeutic touch. Presenter for 25 Continuing Education Contact Hours. St. Francis Retreat Center, DeWitt, MI.

Wyatt, G.K., Bloomfield, M., & Beckrow, K.C. (1997, June and July). Organizers for the 1997 Summer Research Series, with presentations by Given, B.A., Pathak, D., Neumark, D., and Siegl, E.J., Michigan State University, East Lansing, MI.

Wyatt, G. (1997, May 3). Preliminary testing of a Long-Term Quality of Life Instrument. Poster session presented at the Oncology Nursing Society Congress, New Orleans, LA.

Wyatt, G.K. (1997, January). Physical and psychosocial needs of midlife and older women following surgery and adjuvant therapy for breast cancer. Poster session presented at the Fourth National Conference on Cancer Nursing Research, Panama City, FL.

Wyatt, G.K. (1996, November). New DoD funding for breast cancer transition care research. Invited speaker at the College of Nursing, Research Center Seminar Series, Michigan State University East Lansing, MI.

Wyatt, G.K. (1996, June). Quality of life of women experiencing cancer. Poster session presented at the Supportive Care Conference, Toronto, Canada.

Wyatt, G.K. & Dimmer, S. (1996, May 30-June 2). Therapeutic touch. Presenter for 25 Continuing Education Contact Hours, St. Francis Retreat Center, DeWitt, MI.

Wyatt, G.K. (1996, May). Models for assessing quality of life among female cancer survivors. Paper presented at the Family Practice Research Day XIX, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1996, May). Therapeutic touch with critically ill patients. Invited speaker at the Annual Conference of the Association of Critical Care Nurses, Novi, MI.

Wyatt, G.K. (1996, March). Therapeutic touch with various patient populations. Invited speaker at the Latino Midwest Medical Student Association, University of Michigan, Ann Arbor, MI.

Wyatt, G.K., Schiffman, R., & Tiedje, L.B. (1995, December 1). Abstract and poster preparation workshop. Invited speaker at Sigma Theta Tau, Alpha Psi Chapter, East Lansing, MI.

Wyatt, G.K. (1995, November 3-8). Physical, psychosocial, and financial effects of surgery in midlife and older women experiencing breast cancer. Paper presented at the Sigma Theta Tau International Biannual Convention, Detroit, MI.

Wyatt, G.K. (1995, September 26-29). Quality of life of female cancer survivors. Poster session presented at the Kellogg Community/University Health Partnerships, East Lansing, MI.

Wyatt, G.K. & Dimmer, S. (1995, August 11-13). Therapeutic touch. Presenter for 25 Continuing Education Contact Hours for Michigan Nurses Association, Kellogg Biological Station, Hickory Corners, MI.

Wyatt, G. K. (1995, May 18). Physical, psychosocial, and financial effects of surgery in midlife and older women experiencing breast cancer. Paper presented at the Family Practice Research Day XVIII, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1995, April 26-29). Short-term sequelae of midlife and older breast cancer patients. Paper presented at the Twentieth Annual Oncology Nursing Society Congress, Anaheim, CA.

Wyatt, G.K. (1995, April 1-4). Short-term sequelae of midlife and older breast cancer patients. Paper presented at the Midwest Nursing Research Society 19th Annual Conference, Kansas City, MO.

Wyatt, G.K. (1995, March 30). Physical, psychosocial, and financial effects of surgery in midlife and older women experiencing breast cancer. Poster session presented at the Community Liaison Research Day, Michigan Capital Medical Center, Lansing, MI.

REPORTS

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (2000, September). Report of 4th year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery." Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1999, September). Report of 3rd year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery." Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1998, October). Report of 2nd year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery." Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

Wyatt, G.K., Given, B.A., Given, C.W., & Beckrow, K.C. (1997, September). Report of 1st year progress on the study "A Subacute Care Intervention for Short-Stay Breast Cancer Surgery." Submitted to the U.S. Army Medical Research and Materiel Command, Department of Defense.

MEDIA COVERAGE AND PRESS RELEASES

Wyatt, G.K. (2001). A model for delivering care. MSU Nursing, 16(1), 4. Michigan State University, East Lansing, MI.

Wyatt, G.K. (2001). Given leads advanced cancer center: Caring for patients who can't be cured. MSU Nursing, 16(1), 5. Michigan State University, East Lansing, MI.

Wyatt, G.K. (2001, March 15). Sparrow Gives 'Day of Relaxation.' Article by Amy Stanton which highlights presentations by G. Wyatt on complementary therapies at the Sparrow Center for Health, Humanities, and Well-Being "Day of Relaxation and Reflection," in "The State News," Michigan State University, East Lansing, MI.

Wyatt, G.K. (2001, February 18). Breast Cancer Recovery Program. Article about the *Yoga for Breast Cancer Program* in the Towne Courier, Okemos, MI.

Wyatt, G.K. (2001, January 18). Inner Balance: Ancient Hindu Art Brings Ease to Mind, Body, and Soul. Article by Matt Treadwell (highlighting *Yoga for Breast Cancer Program*), in "The State News," Michigan State University, East Lansing, MI.

Wyatt, G.K. (2001, January). Stretching and Relaxation Program for Women who have had Breast Cancer. Article about the *Yoga for Breast Cancer Program* in the "Community Health Education Winter Calendar 2001," Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2001). The Good Life. Research Program highlighted in the "Research at Michigan State University Calendar 2001," Michigan State University, East Lansing, MI.

Wyatt, G.K. (2000, September). Stretching and Relaxation Program for Women who have had Breast Cancer. Article about the *Yoga for Breast Cancer Program* in the "Community Health Education Fall Calendar 2000," Sparrow Health System, Lansing, MI.

Wyatt, G.K. (1999, November 15). Research on the Rise. Article by Elizabeth Vandenboom in "The State News," Michigan State University, East Lansing, MI.

Wyatt, G.K. & Collins, C. (1999, November 10). A Yoga Program for Women following Breast Cancer Surgery. Television interview with Adella Uchida on the "Evening News," WILX, Channel 10, Lansing, MI. (Aired November 10, 1999.)

Wyatt, G.K. (1999, October 22). Research at Michigan State University. Radio interview with Jonathan Brunt on "State News Live," Impact Exposure, WDBN, 89FM, Michigan State University, East Lansing, MI. (Aired October 22, 1999).

Wyatt, G.K. & Rovoll, M.D. (1998, November 30 & December 1). AIDS Awareness Day. Participated in ribbon tying ceremony to commemorate World AIDS Day, WLNS, Channel 6 News, Lansing, MI.

Wyatt, G.K., Given, B.A., & Given, C.W. (1998, Fall). Care for the Caregivers. Article in Michigan State University newsletter "Research News," East Lansing, MI.

Wyatt, G.K. (1998, August). Short-Stay Mastectomy Patients Don't Go Home Alone. Article in Michigan State University newsletter, "Research News," East Lansing, MI.

Wyatt, G.K., Given, B.A., Given, C.W., & Pathak, D. (1998, June). Hospital to Home. Nursing Care for Breast Cancer Study featured on the Science Coalition Web site,"MSU Research: Discovering a World of Promise," Michigan State University, East Lansing, MI.

Wyatt, G.K. & Sprague, J. (1998, June). McNair/SROP Scholars. Publication highlighting the experiences of the Undergraduate and Scholars Research Programs. Offered through the Office of Supportive Services, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1998, May). In Support of Therapeutic Touch (T.T.): A Rebuttal to the Article in the Journal of the American Medical Association (JAMA) that Denounced T.T. Radio interview with Dennis Krolick for MSU News Hotline (Audio news feed-line/sound bites for 24 hour radio service. Available for broadcast by any radio station in U.S. or Canada). Contact number: 1-800-321-6397.

Wyatt, G.K. (1998, Spring). Short-Stay Mastectomy Patients Don't Go Home Alone. Article in Michigan State University newsletter, "MSU Nursing," East Lansing, MI.

Wyatt, G.K. (1997, December 10). Short-Stay Mastectomy Patients Don't Go Home Alone. Press interview for news release through the Office of the Vice President for Research and Graduate Studies, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, November). Breast Cancer Source Guide. Contributor to media release. Contact person: Tom Oswald, Media Communications Department, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, October 28). Breast Cancer Awareness. Television interview with Elizabeth Wooly on "Meridian Magazine", Channel 21, HOM-TV, Okemos Cable Television, Okemos, MI. (aired November 24 - December 7, 1997.)

Wyatt, G.K. (1997, October 1). MSU Tip Sheet. Contributor to media release. Contact person: Russ White, Media Communication Department, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, July 17). Nursing Care Following Short-Stay Breast Cancer Surgery. Radio interview with D. Krolick, Broadcast/Photo Division of University Relations, Michigan State University, for National 24 Hour Radio Information Hotline.

Wyatt, G.K. & Bloomfield, M. (1997, April 11). Breast Cancer Surgery. Television interview for WELG, Channel 22 Cable Television, East Lansing, MI. (Aired twice a day April 14 through April 20, 1997.)

Wyatt, G.K. (1997, Spring/Summer). Recent publications (4) cited in the Cancer Center at Michigan State University Newsletter, East Lansing, MI.

Wyatt, G.K. (1997, March 25). Mammograms Urged at Age 40. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, March 10). Michigan State University Study to Help Women Diagnosed with Breast Cancer. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1997, February 18). Longer Hospital Stays Not Always the Answer. Press interview for news release through the Division of University Relations, Michigan State University, East Lansing, MI.

Wyatt, G.K. (1996, Fall). Investigator Focus. Feature article in Cancer Center at Michigan State University Newsletter, East Lansing, MI.

POLICY CONTACTS AND INVOLVEMENT

Wyatt, G.K., Beckrow, K.C., & Bloomfield, M. (1998, February). Advanced Practice Nurse (APN) Prescriptive Authority and Senate Bill 104. Letter submitted to Senator Dianne Byrum requesting her support of SB 104, East Lansing, MI.

CONTINUING EDUCATION

Wyatt, G.K. (2001, March 21). Attended the "Michigan Partnership Annual Meeting," sponsored by the Michigan Partnership for the Advancement of End-of-Life Care, Michigan Hospice and Palliative Care Organization, Lansing, MI.

Wyatt, G.K. (2001, February 8-10). Attended the "6th National Conference on Cancer Nursing Research," sponsored by the Oncology Nursing Society, Ponte Vedra Beach, Florida.

Wyatt, G.K. (2000, October 14). Attended a Meditation Workshop by Elisabeth Dodge, sponsored by Science of Spirituality, Spirituality and Creative Wellness Center, East Lansing, MI.

Wyatt, G.K. (2000, October 13). Attended a program by Tim Porter-O'Grady, entitled "Glimpse Over the Horizon: Shaping the Future," sponsored by College of Nursing, Michigan State University, East Lansing, MI.

Wyatt, G.K. (2000, October 12). Attended program by Suzanne Gordon, entitled "From Silence to Voice: What Every Nurse Knows and Must Communicate to the Public," sponsored by Celebration of Nursing 2000, University Club, Michigan State University, East Lansing, MI.

Wyatt, G.K. (2000, October 4). Attended program by Joan Borysenko, PhD, entitled "Women's Wisdom and Healing Power," sponsored by Centerpoint 2000, Sparrow Women's Services, Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2000, September 20). Attended program by C. Norman Shealy, MD, PhD, entitled "Creating an Accredited Energy Medicine Research Institute," sponsored by the Energy Medicine Research Network Founder's Circle, Ann Arbor, MI.

Wyatt, G.K. (2000, July 29). Attended the "Second Annual Betty Ford Breast Cancer Symposium," sponsored by the Comprehensive Cancer Center, University of Michigan, Ann Arbor, MI.

Wyatt, G.K. (2000, July 21-24). Attended "A New Mind for a New Century," Annual Conference of the Theosophical Society of America, Wheaton, IL.

Wyatt, G.K. (2000, June 13). Attended program by futurist, Ian Morrison, PhD, entitled "Health Care in the New Millenium," Kellogg Center, Michigan State University, East Lansing, MI.

COMMUNITY SERVICE

Wyatt, G., & Campbell, M. (2000-2001). Michigan Partnership for the Advancement of End of Life Care. Robert Wood Johnson Foundation. Participating in Undergraduate Nursing curriculum and assessment, Lansing, MI.

Wyatt, G.K. (2000, January 7). Interviewed as an expert in Therapeutic Touch as part of an NIH study funded by the Center for Complementary and Alternative Medicine entitled, "Comparison of Biofield Energy Therapists," University of Michigan, Ann Arbor, MI.

Wyatt, G.K. (1999, November 2). Mentor for Yayoi Yagi, visiting professor from the University of Shiga Prefecture, Japan. The objective of the experience was to provide an overview of nursing-based cancer research in the United States.

Wyatt. G.K. (1999, October 16). American Cancer Society, Making Strides against Breast Cancer, Lansing, MI.

Wyatt, G.K. & Collins, C. (1999-2000). Ongoing eight week yoga education class for women following breast cancer surgery. Conducted at Sparrow Hospital, Lansing, MI.

Wyatt, G.K. (1996, July 18-28). Volunteer for Camp Catch A Rainbow for Kids with Cancer, Muskegon, MI.

LAY PRESENTATIONS AND ARTICLES

Wyatt, G.K. (2001, March 14). Guided Imagery in Health Care. Invited speaker for the Center for Health, Humanities, and Well-Being "Day of Relaxation and Reflection," Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2001, March 14). Water as a Therapeutic Medium. Invited speaker for the Center for Health, Humanities, and Well-Being "Day of Relaxation and Reflection," Sparrow Health System, Lansing, MI.

Wyatt, G.K. (2000, August). Complementary Therapies in Today's Health Care. Invited speaker for the Metaphysical Church of Christ, Lansing, MI.

Wyatt, G.K. (2000, March 26). Complementary Therapies in Health Care. Invited speaker for the Theosophical Society of America - The Lansing Study Center, Lansing, MI.

Wyatt, G.K. (1996, November 19). The Breast Cancer Experience. Presentation for the Unitarian Universalist Church Women's Group, East Lansing, MI.

Wyatt, G.K. (1996, October). Sigma Theta Tau Alpha Psi Chapter Anniversary. Poster for the College of Nursing Homecoming Celebration, East Lansing, MI.

STUDENT MENTOR

Wyatt, G.K. (2001). Mentor for masters student, Heidi Clippard, on the End of Life: Center for Excellence Project.

Wyatt, G.K. (2001). Mentor for doctoral student, Anita Jablonski, on the End of Life: Center for Excellence Project.

Wyatt, G.K. (2000-2001). Sponsored sophomore student, Alysia Johnson, from the Undergraduate Research Opportunity Program (UROP). The objective of the experience was to help the student develop a basic understanding and appreciation for research.

Wyatt, G.K. (2000). Mentor for Ami Zimqualla-Cook, Administrative Fellow, Sparrow Health System. The objective of this project was to survey Sparrow associates on interest, use, and knowledge of complementary therapies, analyze data, and present a report to Sparrow administration.

Wyatt, G.K. (2000, May). Mentor for visiting nursing students, Bronwyn Tunnage and Katherine Mardle, from the Nightingale Institute, King's College, London, England. The objective of the experience was to provide an opportunity to learn about breast cancer care and research in the United States.

Wyatt, G.K. (1999, November). Mentor for visiting graduate student, Sylvia Krumm, from Albert-Ludwigs University, Freiburg, Germany. The objective of the experience was to provide an understanding of the nursing research process.

Wyatt, G.K. (1998, January). Mentor for East Lansing High School students. The objective of the experience was to provide students with an opportunity to see what a professional career in nursing research involves.

Wyatt, G.K. (1997-1998). Sponsored freshman student, Jill Sprague, from the Undergraduate Research Opportunity Program (UROP). The objective of the experience was to help the student develop a basic understanding and appreciation for research.

Wyatt, G.K. (1998, February). Mentor for nursing students from the Florence Nightingale Institute, London, England, during their visit to the MSU College of Nursing. The objective of the experience was to provide the students with a brief overview of breast cancer nursing research in the United States.

Wyatt, G.K. (1996-Present). Mentor for graduate students working on grant. The objective of the experience is to provide opportunities to present research at professional conferences, develop writing skills by participating in manuscript development, and provide guidance in students' pursuit of a professional career involving research.

Wyatt, G.K. (1996-Present). Mentor for undergraduate students working on grant. The objective of the experience is to provide opportunities to be involved in the research process and encourage professional development.

THESIS COMMITTEES

Wyatt, G.K. (1999). Chair of thesis committee for Mary Bloomfield, RN, MSN. Post-Discharge Seroma Formation Following Breast Cancer Surgery: Implications for the Advanced Practice Nurse.

Wyatt, G.K. (1998). Chair of thesis committee for Maria Cooper, RN, MSN. Holism, The Advanced Practice Nurse and the Use of Complementary Therapies.

Wyatt, G.K. (1998). Chair of thesis committee for Afriyie Johnson, RN, MSN. The Differences in Reported Symptoms and/or Risk Factors and Clinical Breast Exam Findings in Low Income White and Black Women.

Wyatt, G.K. (1997). Chair of thesis committee for Susan Lynn Wimpee, RN, MSN. Advance Practice Nurses' Attitudes and Practice Patterns Toward Alternative Therapies.

Wyatt, G.K. (1997). Chair of thesis committee for Julie Kay Walker, RN, MSN. Relationship Among Uncertainty, Stimuli Frame, and Structure Providers in Women with Breast Cancer Choosing Breast Surgery.

Wyatt, G.K. (1997). Chair of thesis committee for Karen Ann Rosasco, RN, MSN. Use of Complementary Therapies by Persons Diagnosed with Breast, Lung, Colorectal, or Prostate Cancer.

Wyatt, G.K. (1997). Member of thesis committee for Mary Beth Adyniec, RN, MSN. The Caregiver's Perception of the Tasks of Care Needed by Patients with Late Stage Lung Cancer and Colorectal Cancer.

Wyatt, G.K. (1996). Chair of thesis committee for Donna Blanche Zambetis, RN, MSN. Attitudes of Women with Breast Cancer Toward Therapeutic Touch.

Wyatt, G.K. (1996). Member of thesis committee for Evelyn Hammond Bochenek, RN, MSN. Female Patients' Perceptions of Pain and Physical Well-Being Following Surgery for Breast Cancer.

Wyatt, G.K. (1995). Member of thesis committee for Cynthia Sue Butcher, RN, MSN. Psychological and Sociodemographic Barriers to Health Care Access of Rural Women Diagnosed with Breast Carcinoma.

Wyatt, G.K. (1994). Co-Chair of thesis committee for Mary Miller Sies, RN, MSN. An Exploratory Study of Relaxation Response in Nurses who Utilize Therapeutic Touch.

Wyatt, G.K. (1991). Member of thesis committee for Julie Gwen Thomas-Beckett, RN, MSN. Attitudes Toward Therapeutic Touch: A Pilot Study of Women with Breast Cancer.

Wyatt, G.K. (1983). Member of thesis committee for Elaine Carol Harmon, RN, MSN. The Relationship Between Perceived Barriers to Treatment and Compliance with the Hypertensive Therapeutic Regimen.

Wyatt, G.K. (1983). Chair of thesis committee for Phyllis Britto Brooks, RN, MSN. The Relationship of Perceived Illness Severity and Compliance with the Hypertensive Therapeutic Regimen.

WEB SITE DEVELOPMENT

Wyatt, C.A., Beckrow, K.C., & Wyatt, G.K. (1998, May). Nursing Care for Breast Cancer Web Site Development. Site gives an overview of study including purpose and aims, study design, nursing protocol, instruments used, funding source, study members, participating surgeons, bibliography of study related articles, and breast cancer resources.
URL: http://www.msu.edu/~nurse/bc

A Subacute Care Intervention for Short-Stay Breast Cancer Surgery

PERSONNEL LISTING
Appendix E

PERSONNEL LISTING
All Staff Members Receiving Pay for Duration of Study
September 15, 1996 to September 14, 2001

Principal Investigator
Gwen Wyatt, RN, PhD

Co-Principal Investigators
Barbara Given, RN, PhD, FAAN
Charles W. Given, PhD

Staff Members
Kathryn Christensen Beckrow, RN
Mary Bloomfield, RN
Chiung-Ying Cheng, MS
Robert Clark
Nikki Cleveland
Deborah Collier, RN
Maria Coronado
Bryan Coyle, MS
Sarah DiGusto
Patty Fisher, RN
Christopher Fleeman
Wenjiang Fu, PhD
Erika Garcia, MA (MPHI)
Deelyn Greenman, RN
Mary Ellen Hagerman
Patte Hahn
Alane Hanses
Robert Hopp, MA
Kathy Ives
Patricia Kaelin, RN, MSN
Jin Ah Kim
Kate Knight, RN
Sara Lewandowski
Lisa McConnell, RN
Kathryn Miller, RN
Shirley Najjar, RN
Marie Nielsen
Mary Ohrt, RN
Dorothy Pathak, PhD
Cassie Patton
Joanne Pavlinac, RN
Denise Richards, RN
Melissa Rovoll, RN
Rosemary Sandefer
Deborah Sarsfield, RN
Barbara Schillo, PhD (MPHI)
Mary Smania, RN, MSN
Mary Kay Smith, RN
Cheribeth Tan-Schriner, PhD (MPHI)
Carol Vermeesch, RN, MSN
Sybil Weaver, RN
Lynn Whitaker, RN
Pamela Whitaker
Jeanne Wolfe
Stephanie Worman
Christopher Wyatt

DEPARTMENT OF THE ARMY
US ARMY MEDICAL RESEARCH AND MATERIEL COMMAND
504 SCOTT STREET
FORT DETRICK, MARYLAND 21702-5012

REPLY TO
ATTENTION OF:

MCMR-RMI-S (70-1y) 8 Jan 2003

MEMORANDUM FOR Administrator, Defense Technical Information Center (DTIC-OCA), 8725 John J. Kingman Road, Fort Belvoir, VA 22060-6218

SUBJECT: Request Change in Distribution Statement

1. The U.S. Army Medical Research and Materiel Command has reexamined the need for the limitation assigned to the enclosed. Request the limited distribution statement for the enclosed be changed to "Approved for public release; distribution unlimited." These reports should be released to the National Technical Information Service.

2. Point of contact for this request is Ms. Judy Pawlus at DSN 343-7322 or by e-mail at judy.pawlus@det.amedd.army.mil.

FOR THE COMMANDER:

Encl

PHYLLIS M. RINEHART
Deputy Chief of Staff for
Information Management

ADB265840
ADB279138
ADB264578
ADB281679
ADB281645
ADB261128
ADB261339
ADB273096
ADB281681
ADB259637
ADB256645
ADB262441
ADB281674
ADB281771
ADB281612
ADB266633
ADB251763
ADB281601
ADB258874
ADB281773
ADB281660
ADB259064
ADB266141
ADB281664
ADB258830
ADB266029
ADB281668
ADB259834
ADB266075
ADB281661
ADB282069
ADB265386
ADB282057
ADB258251
ADB264541
ADB241630
ADB281924
ADB281663
ADB281659